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# Agricultural Outlook Forum 2000



## Speech Booklet 2

**Friday, February 25**

For release 7:00 a.m., February 25

### **8:00 THE OUTLOOK FOR COTTON AND FIBERS, PART 1: DOMESTIC AND FOREIGN PROSPECTS**

#### **Trends in Foreign Production**

Ray Butler, Chief Editor, Cotton Outlook

#### **Representative Cotton Farms Economic Outlook for the January 2000 FAPRI/AFPC Baseline**

Edward G. Smith, James W. Richardson, David P. Anderson, Ronald D. Knutson, Paul Feldman, Keith Schumann, Joe L. Outlaw, Steven L. Klose, Cody White; Agriculture and Food Policy Center, Department of Agricultural Economics, Texas Agricultural Extension Service, Texas A&M University

### **10:00 THE OUTLOOK FOR COTTON AND FIBERS, PART 2: FOCUS ON CHINA**

#### **China's Cotton Reform Policy and its Market Implications**

Haowu Ding, Executive Manager, China National Cotton Exchange  
Translated by Hsin-Hui Hsu, Economic Research Service, USDA

### **10:00 MANDATORY LIVESTOCK PRICE REPORTING: IMPLEMENTATION AND IMPACT**

#### **Potential Benefits of Mandatory Price Reporting**

Jon D. Caspers, President, Pleasant Valley Pork Corporation, Swalesdale, Iowa

### **10:00 THE OUTLOOK FOR SUGAR AND SWEETENERS**

#### **The Future of the U.S. Sugar Industry in a Changing Policy Environment**

Ben Goodwin, Executive Manager, California Beet Growers Association

### **12:10 GRAINS AND OILSEEDS LUNCHEON**

#### **Challenges Facing the U.S. Oilseeds and Grain Industries in 2000 and Beyond - Global Market Access**

Albert J. Ambrose, Vice President, Oilseeds Product Line - Aligned Grain Group, Cenex Harvest States, and Chairman, National Oilseeds Processors Association

### **2:00 NUTRIENT MANAGEMENT POLICIES: BALANCING LIVESTOCK PRODUCTION WITH ENVIRONMENTAL QUALITY**

#### **Maryland's Regulatory Approach to Nutrient Management**

Thomas W. Simpson, Coordinator, Chesapeake Bay Agricultural Programs, University of Maryland and Maryland Department of Agriculture

### **2:00 U.S. AND INTERNATIONAL TOBACCO OUTLOOK**

#### **The Future of U.S. Tobacco Production**

Arnold Hamm, Assistant General Manager, Flue-Cured Tobacco Cooperative Stabilization Corporation

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## **TRENDS IN FOREIGN PRODUCTION**

**Ray Butler  
Editor,  
Cotton Outlook**

### **Introduction**

I would like to thank the organisers, and particularly Carol Skelly, for the invitation to address this conference. My paper focuses on cotton production outside of the United States, reviewing briefly the current situation and highlighting some of the factors that are likely to be influential in the future. I will touch on prospects for next season. Our first world production forecast is in fact published in today's edition of the Cotton Outlook weekly magazine. Subscribers can read the details now by downloading the publication from our website. However, for your convenience, handouts containing the data have been made available for distribution at this meeting.

### **A bit of a gamble**

Predicting the future is fraught with the danger that one becomes a hostage to fortune. It is a gamble. Before Christmas, one could have felt secure - though not very happy - in discussing the potential impact of low world prices on farmers' planting aims, drawing on the experience of the past to point out the different reactions that might be expected in different political and economic environments. The argument paraded by ERS in the mid-eighties, I recall, was that state-controlled economies were less likely to be price-sensitive, at least in the short term to world price changes. An interesting debate could focus on how such a claim might have changed given the influence of 'market forces' in China, or the destabilisation of the former monopoly control in West African states.

The rapid turnaround of world prices since the beginning of January has required a smart rethink of what might happen during the coming season. The first draft of my comments today, written before I indulged in Christmas spirit, was quietly ditched. Perhaps the spirit should have come first!

Prices have risen to a level at which many farmers who initially had seemed likely to turn from cotton could change their minds. So, is the name of the game for those of us who are inclined to roll the dice now, as usual, to consider such mundane matters as the availability of inputs and to monitor weather, or to ask some more challenging questions?



## **Low prices and the subsidy issue**

It may be reiterating the obvious, that the low prices we have recently seen have had severe financial consequences for the producer. In the United States, individual producers are to a large extent responsible for their own fate. Even so, however, it is the state (or the taxpayer) to which agriculture looks to provide a safety net. A greater extreme still can be found in this principle in Europe. The principle is no different in many other countries, except that taxpayers are often fewer, and states are poorer. Nevertheless, the past year has witnessed the emergence of subsidy schemes, which national exchequers have been required to fund. The list of countries concerned would include Pakistan, Egypt, Israel and others. Farmers in some parts of the world would seem to have been partially insulated by these subsidies from the low prices. An important caveat, however, is to note that the battle over prices paid to farmers in most West African countries has been much harder fought this time around, particularly in Ivory Coast, where ownership of the ginning sector is now split into three, with two regions in the hands of private-sector interests and the other remaining in the control of the former, parastatal monopoly. It might be postulated that increasing privatisation offers to remove the guarantee that previously afforded the farmer price certainty.

## **An important exception**

It is to be anticipated, furthermore, that the price shock received by China's farmers will have the effect of driving plantings lower for the next and probably subsequent crops, in line with current government policy. In the past, changes in policy have led to a cyclical pattern of excess and shortage, with important ramifications for the world market. China's accession to the WTO, when that event happens, will presumably reduce the scope for policy change, since the domestic market will remain exposed to a sizeable volume of imports, and thus to world market price influences. Chinese bureaucrats appear inclined to the view that inefficient, small-scale agriculture - the household responsibility system - must be allowed to wither while the economy focuses on exploiting its comparative advantage of low labour costs in manufacturing. A trend is likely to continue in cotton production toward planting high-yielding crops which can produce better quality supplies.

## **A few numbers**

World production outside of the United States this season is estimated to have declined by about 1.2 percent and a slightly greater fall seems in prospect during 1999/2000. These figures are slightly misleading, however, since if one also excludes China - as the accompanying chart demonstrates - world output rose by over 4 percent during 1999/2000, and can be expected to increase further during 2000/2001.

It is Cotton Outlook's practice, unlike other agencies, to divide the world, for production purposes, into the three logical production belts based on planting and harvesting times, the Northern, Equatorial and Southern belts.

## **The Northern Belt**

As one might expect, changes in output in the Northern Belt roughly match, in proportionate terms, those for the world as a whole. Losses in China this season have been largely offset by gains in Pakistan, which, after several consecutive years of disaster, experienced the right weather at the right time, and in Uzbekistan, which saw the return of a more normal average yield following the setback caused by inclement conditions during 1998/99. A relatively strong rise was recorded also in the European Union, notably in Greece.

When the majority of the Northern Belt crops were planted a year ago, New York futures and the A Index were both hovering around 60 US cents per lb. Although values have risen from their recent lows, attainment of a similar level this spring is by no means assured.

Northern Belt production seems likely to decline in 2000/2001 but, if both the US and China are excluded, volume will, we suggest, be slightly greater than in the present season. Modest losses in some countries seem likely to be offset by further gains in the Indian subcontinent.

## **Indian subcontinent**

Following several years in which untimely rains had stimulated insect and disease at crucial stages of the growth cycle in Pakistan, 1999 has proved quite different. Area sown increased by some 2.4 percent. Good weather prevailed throughout the autumn, thus allowing rapid maturation of bolls and an early start to harvesting. Production seems likely to have risen by 26 percent, to reach its highest level since 1995/96. Any change in area for next season seems likely to be marginal but production could be assisted by the government's continued efforts to restore the irrigation network. In the longer-term, the official aim is to produce a quantity of lint sufficient to provide an exportable surplus of 1.5 million bales.

In India, a late onset of Monsoon rains in the western region has resulted in a quantitative reduction, compared with the initial expectation, of quite significant proportions. Some southern regions have also suffered badly as a result of a surprisingly low average yield, which is attributed to poor vigour of the varieties sown. Whereas India's Cotton Advisory Board forecast at its first meeting last November a lint outturn of some 13.7 million bales, the 1999/2000 crop now seems likely to be about 1 million bales less, or about the same size as the year before. Officially, planted area in 2000/2001 is forecast to expand by more than 12 percent compared with last year. It remains to be seen whether such an ambitious gain can be realised, notwithstanding the government's clear aim to rise cotton production.



## **Central Asia**

Official sources in Uzbekistan say that area will remain about unchanged overall, and that output will not alter significantly in the short to medium term, unless it is achieved by dint of improvement in average yield. Focus on the varieties under cultivation has been urged from the very highest levels.

We remain unclear about production levels in Turkmenistan, the second largest producer in Central Asia. Official sources claim seed cotton output has registered a sharp rebound this season. An even higher target is envisaged for next season. Whilst these claims are disputed by private sources, official data indicate that more lint is indeed being ginned. Officially, the objective in the next three to five years is for seed cotton production to almost double compared with the level of output claimed for the present season.

The key to production in Tajikistan and Kazakhstan will be the extent to which pre-finance is forthcoming from abroad. A lack of such a provision on the same scale as before, which limited the purchasing power for agricultural inputs, is cited in explanation of Tajikistan's decline in output of about 11 percent during 1999/2000. In aggregate, Central Asian output is likely to be roughly similar in magnitude to this season's level, at close to 7,350,000 bales.

## **Middle East**

Future levels of output in much of the Middle Eastern region will be determined principally by the availability of water. Plentiful rain earlier this year has transformed the situation in Israel, which last year witnessed a dramatic scaling back of production owing to a lack of irrigation water. Although production may recover somewhat, particularly also with the improvement in world prices, doubt is expressed that sown area will be restored to the level of former years.

A shortage of water in Syria is likely to result in a fall of at least 10 percent in area sown and a commensurate fall in output, and will remain a limiting factor in the foreseeable future.

Egypt provisionally anticipates an increase of at least seven percent in planting area for the 2000/2001 season, with expansion continuing to be focused on long staple styles rather than extra-long. The return of some price protection for the farmer during the past season demonstrates the importance of cotton to the country's agricultural sector. Even with continued steps towards liberalising the cotton sector, it is hard to imagine a significant change in aggregate sowings in the foreseeable future.

Turkey can be expected to see a continuation of the drift in production towards the South East, which, in the longer term, is an area that has the potential to register significant growth as reservoir construction plans proceed. In 2000/2001, however,

some observers contend that the region's farmers will plant slightly less cotton on price grounds. Since there will presumably be a continued decline in area in the traditional growing region of Cukurova, where other crops are more lucrative, and production of the premium cotton roller-ginned styles in the Aegean is unlikely to record a significant change, the country's total output could register a modest decline.

## **European Union**

European Union producers continue to benefit from the high subsidies paid by Brussels. Both Greece and Spain have this season registered unexpectedly sharp increases in output, of about 9 and 18 percent, respectively, thanks to improved yields.

It was anticipated that 1999 would have seen a review of Commission policy, which would have been well in place for this season, but the process was thrown into disarray by political developments in mid-year. A proposed new framework was subsequently adopted by the Commission toward the end of last year and now awaits ministerial approval. Its intent is to focus on environmental concerns and budgetary control. Environmental issues could include restricting the eligibility for aid, where appropriate. It is in the budgetary control measure that one can foresee a more immediate impact on cotton cultivation, since the proposal is to increase the rate of penalty – the automatic stabiliser – applied to the guide price when national seed cotton production exceeds pre-determined limits<sup>1</sup>. In simple words, the rate of aid per unit paid by Brussels is lowered the more that is produced above the pre-set limit. Apart from the changes described, there seems unlikely to be any great willingness to depart radically from the present arrangements. Europe will continue to argue, on the one hand, that the aid it expends goes principally to the poorest parts of the Union and, on the other hand, that cotton imports are allowed freely. In consequence, its regime is perceived within the Union to be justifiable.

It is nevertheless evident that the proposals have brought uncertainty to planting prospects for the new season within the EU. Furthermore, confusion has been sown in Greece by a proposal from the Hellenic Cotton Board, which, in simple terms, envisages limiting an individual producer's planted area to something less than the average of the three past seasons. Spain, meanwhile, reports that water reserves are much less favourable than a year ago.

## **The Equatorial Belt**

Production in equatorial countries is expected to have risen by about 5.5 percent this season but any gains next time around seem likely on present indications to be modest.

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<sup>1</sup> A 'guide price' is set, usually for a season, and the difference between it and a notional world seed cotton value is used as a basis for calculation of aid payments. Aid payments are subject to penalty, however, to the amount by which national 'quotas (249,000 metric tons of seed cotton in Spain and 782,000 metric tons in Greece) are exceeded. The current penalty ('automatic stabiliser') is 0.5 percent for each one percent overrun of the quota. The Commission's proposal is to increase the penalty to 0.6 percent.



Price may have some influence, and there is still some way to go before the next planting decisions are taken. Comparison will be made, presumably, with international values prevailing at the last sowing, when the New York futures March 2000 delivery and the Cotlook 1999/2000 A Index were both around 57 cents per lb.

In an international context, the countries referred to under the Equatorial Belt heading are principally located in Africa, since output in the equatorial zone of Latin America is of small importance. In the African Franc Zone, many farmers remain dependent on cotton as their principal cash crop, and it is unsurprising therefore to find that planted area fell in a relatively marginal fashion across the region, except in Mali, the largest single producer. The region's output is currently forecast to be about 2 percent higher on the year. A modest decline in sowings and output could be in prospect next season, driven partly by the lower seed cotton prices currently being paid to farmers in most countries. In the longer term, the move toward privatisation will remain a principal force in determining levels of cotton production, as will the exchange parity for the region's currency against the US dollar.

In Sudan, the harvest has made good progress since the turn of the year, and a gain in output of about 50 percent is apparently considered foreseeable by Khartoum. In the medium term, the National Redevelopment Plan provides for rehabilitation of the three main agricultural schemes, including the Gezira, the potential success of which will undoubtedly be helped if Sudan continues to resume political and economic links with the West.

Tanzania's cotton sector remains in some disarray but this season's cotton production should prove higher, thanks to more favourable weather. Similarly favourable weather has proved helpful also in Uganda and a continued gradual recovery is foreseeable in the country's cotton sector, depending on the development of world prices.

### **The Southern Belt**

Southern Belt production is forecast to have declined this season by around 5 percent. Looking forward a season is particularly difficult when the current crop is still in the ground but a tentative view would indicate that a fairly strong recovery might be foreseeable, if recent disappointments in South America are not repeated.

Among the Mercosur producers, Argentina might hope farmers will try cotton yet again, despite a limited finance after successive losses in recent seasons, and that, weather permitting, a trend towards further recovery can be expected in the medium term, since the infrastructure remains largely in place. Paraguay should experience a more satisfactory harvest result this season and this might help restore confidence for the future. A return to the level of output of the mid-nineties is considered a possibility next year. In Brazil, the production potential in the newly opened lands of the Mato Grosso remains a most exciting prospect and gains in area in this region, together with better yields, seem likely to continue to offset declines in traditional cotton producing regions.

In southern Africa, crop prospects in the Republic of South Africa, Swaziland and Mozambique, have not been helped by recent adverse weather, which has been too wet. Some sources have further reduced crop forecasts that were already lower than a year ago. Zimbabwe, the region's largest producer, and a significant exporter, has on balance, however, welcomed the moisture. Furthermore, whereas commercial (that is, larger-scale, irrigated) plantings have declined on price grounds, the communal (smaller-scale, dryland) sector has continued to flourish. Observers predict that a moderate growth in output is foreseeable during the next few years, depending on broader economic influences, and the availability, at reasonable cost, of agricultural inputs.

### **The Stocks Issue**

Like production, we generally take a short-term view of the outlook for consumption. Our first forecast for the 2000/2001 season will be released in April and we cannot therefore complete the accompanying chart, showing ending stocks further ahead than this year. For 1999/2000, we continue to project a small surplus of production over consumption on a global scale, and a substantial surplus if one excludes China from the figures. We remain convinced that the activities of China will remain of paramount importance for the pattern of trade in cotton in years to come.

Cotton Outlook is sometimes criticised, since we do not do it on a country-by-country basis, for inadequately monitoring world stocks. We frankly do not have the time to do this more accurately than bodies like USDA and ICAC. Stock estimates from these two organisations invariably differ, since the sources of information are not always the same, and such estimates must inevitably contain a degree of subjectivity. However, it is worthy of note that more than a third of the difference between the two organisation's world ending stock figures are accounted for by China. It would seem to us that it would be a useful exercise for the cotton industry's understanding of world statistics if they were to seek to reach a closer measure of agreement on China alone. One of them must be more right than the other!



## REPRESENTATIVE COTTON FARMS ECONOMIC OUTLOOK FOR THE JANUARY 2000 FAPRI/AFPC BASELINE

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The farm level economic impacts of projected long term prices under the Federal Agriculture Improvement and Reform Act of 1996 (1996 Farm Bill) on representative cotton operations are projected in this report. The analysis was conducted over the 1996-2004 planning horizon using FLIPSIM, AFPC's whole farm simulation model. Data to simulate farming operations in the nation's major cotton production regions came from two sources:

- Producer panel cooperation to develop economic information to describe and simulate representative cotton farms.
- Projected cotton prices, policy variables, and input inflation rates from the Food and Agricultural Policy Research Institute (FAPRI) January 2000 Baseline.

The primary objective of the analysis is to determine the cotton farms' economic viability by region throughout the life of the 1996 Farm Bill and beyond.

The FLIPSIM policy simulation model incorporates the historical risk faced by cotton farmers for prices and production. This report presents the results of the January 2000 Baseline in a risk context using selected simulated probabilities and ranges for annual net cash farm income values. The probability of a farm experiencing annual cash flow deficits and the probability of having to refinance cash flow deficits are provided to show the financial risk faced by the representative farms. The probability of a farm losing real net worth is included as an indicator of the equity risk facing farms through the year 2004.

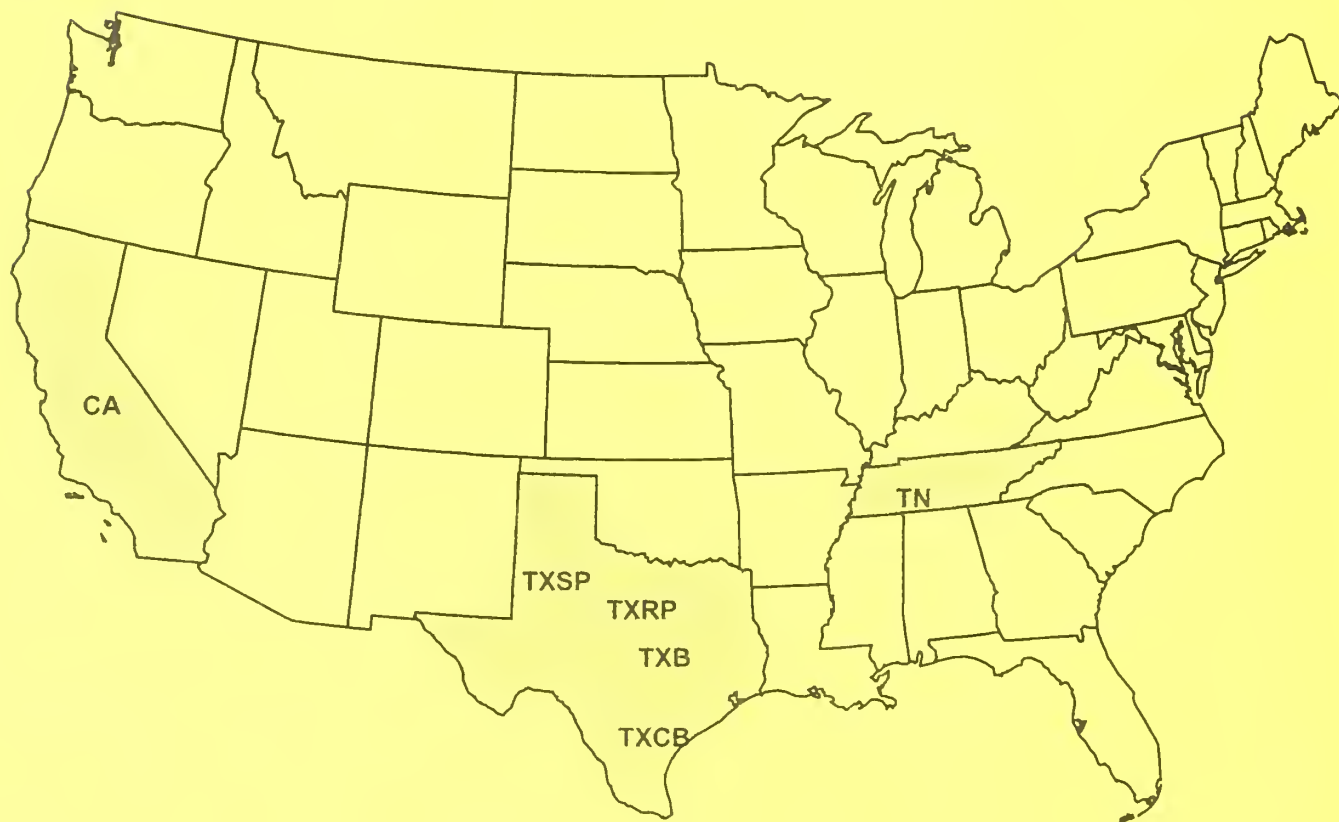
This report is organized into four sections. The first section summarizes the process used to develop the representative cotton farms and the key assumptions utilized for the farm level analysis. The second section summarizes the FAPRI January 2000 Baseline and the policy and price assumptions utilized. The third presents the results of the simulation analyses for the cotton farms. An appendix constitutes the final section of the report. The appendix includes a table to summarize the physical and financial characteristics for each of the representative cotton farms and the names of producers, land grant faculty, and industry leaders who cooperated in the panel interview process.

### Cotton Panel Farm Process

AFPC has developed and maintains data to simulate 9 representative cotton farms chosen from major production areas across the United States (Figure 1). Characteristics for each of the farms in terms of location, size, crop mix, assets, and average receipts are summarized in the appendix. The location of



**FIGURE 1. REPRESENTATIVE FARMS  
PRODUCING COTTON**



these farms is primarily the result of discussions with staffers for the House and Senate Agriculture Committees. Information necessary to simulate the economic activity on these representative farms is developed from panels of producers using a consensus building interview process. Normally two farms are developed in each region using separate panels of producers: one is representative of moderate size full-time farm operations and the second panel usually represents farms two to three times larger.

A more detailed discussion of the AFPC panel farm process and the economic impacts on all farms and ranches is included in the AFPC Working Paper 00-01 titled "Representative Farms Economic Outlook for the January 2000 FAPRI/AFPC Baseline". The paper is available on the AFPC website at [afpc1.tamu.edu](http://afpc1.tamu.edu).

### **Key Assumptions**

- Farms classified as moderate scale are the size (acres or number of livestock) considered to be representative of a majority of full-time commercial cotton farming operations in the study area. In many regions, a second cotton farm, two to three times larger than the moderate scale operation is developed as an indicator of size economies.
- The farms are structured so government payment limits were not effective at reducing contract payments and loan deficiency payments.
- Minimum family living withdrawals were assumed at a base rate of 10 percent of gross receipts or \$25,000 annually, whichever is lower. Actual family living withdrawals are determined by historical consumption patterns.
- The farm is subject to owner/operator federal (income and self-employment) and state income taxes as a sole proprietor, based on the current tax provisions.
- No off-farm-related income including family employment was included in the analyses.
- Farm program parameters, average annual prices, crop and livestock yield trends, interest rates, and input cost inflation (deflation) are based on the January 2000 FAPRI Baseline which assumes implementation of the 1996 Farm Bill through 2004.
- The farms began the 1996-2004 with an assumed 20 percent debt on machinery equipment and real estate.
- The farms are assumed to be enrolled in the production flexibility program and take full advantage of the flexibility provisions in the 1996 Farm Bill (within the current crop mix). Production Flexibility Contract (PFC) payments are held constant in 2003 and 2004 at their 2002 levels. Crop mix changes after 1999 were estimated based on projected net returns for each of the enterprises currently produced on the farms.
- To simulate the historical portion of the planning horizon (1996-1999) crop yields were held constant based on actual values obtained from the producers. Average yields for 2000-2004 were simulated based on the average yields provided by the producers and the historical yield variability for the farm. Prices were held constant at producer provided values for 1996-1999. FAPRI's January Baseline prices were localized for the farms and used as the average prices for 2000-2004.

- Market loss assistance payments and disaster provisions passed in late 1998 and again in 1999 have been incorporated.
- All farms are assumed to carry MPCl at the 50/100 level.

### **FAPRI January 2000 Cotton Baseline**

Projected cotton prices for FAPRI's January 2000 Baseline are summarized in Table 1. Cotton prices continue their decline until 1999 reaching a low of \$0.4594/lb. and then increase gradually to \$0.5433/lb. in 2004.

Assumed loan rates and projected annual contract (AMTA) payment rates are also summarized in Table 1. The contract or AMTA payment rates for 1998 and 1999 reflect the increase for the 1998 and 1999 market loss assistance payments authorized in those years. Annual contract payments for 2002 are assumed to remain constant for 2003 and 2004.

Projected annual rates of change for variable cash expenses are presented in Table 1. The rate of change in input prices and interest rates come from FAPRI's January 2000 Baseline which relies on WEFA's macroeconomic projections. Annual interest rates paid for long- and intermediate-term loans and earned for savings are also summarized in Table 1. Assumed annual rates of change in land values over the 2000-2004 period are provided by the FAPRI Baseline and indicate a decrease in nominal land values for 2000-2004.

### **Definitions of Variables in the Summary Table**

- **Annual Change in Real Net Worth, 2000-2004** -- annualized percentage change in the operator's net worth from January 1, 2000 through December 31, 2004, after adjusting for inflation. This value reflects the real annualized increase or decrease in net worth or equity for the farm over the planning horizon including changes in real estate values.
- **Net Income Adjustment (NIA), 2000-2004** -- NIA is the annual increase or decrease in net cash farm income necessary to shift the cotton farm from a marginal or bad financial position to one classified as good. NIAs are expressed both as total dollars per year and as a percent of average annual cash receipts.
- **Cost to Receipts Ratio, 2000-2004** -- average ratio of total cash expenses to total receipts (from all sources). Cash expenses include interest costs, fixed cash costs, and variable costs but exclude principal payments, depreciation, income taxes, and family living expenses. Total receipts include crop and livestock receipts plus government payments and insurance indemnities.
- **Government Payments/Receipts, 2000-2004** -- sum of all farm program payments (AMTA and marketing loan deficiency payments) divided by total receipts received from the market plus contract payments, marketing loans, crop insurance indemnities, and other farm related income.
- **Total Cash Receipts** -- sum of cash receipts from all sources, including market sales, AMTA (or contract) payments, CCC loans, marketing loan deficiency payments, crop insurance indemnities, and other farm related income. The values in Table 2 are the average total receipts for each year in the planning horizon.



Table 1. Policy Outlook for Cotton, 1996-2004

	1996	1997	1998	1999	2000	2001	2002	2003	2004
Price (\$/lb.)	0.6930	0.6520	0.6020	0.4842	0.4884	0.5011	0.5185	0.5409	0.5636
Loan Rate (\$/lb.)	0.5192	0.5192	0.5192	0.5192	0.5000	0.5000	0.5000	0.5000	0.5000
AMTA Payment Rate (\$/lb.)	0.0890	0.0760	0.1230	0.1570	0.0710	0.0570	0.0560	0.0560	0.0560
<b>Annual Rate of Change for Input Prices Paid</b>									
Seed Prices (%)		7.73	4.56	-0.08	-3.66	2.03	1.84	1.77	1.80
Fertilizer Prices (%)		-1.76	-10.32	-1.51	1.61	2.43	1.33	1.36	1.52
Chemical Prices (%)		-2.01	1.82	-1.42	1.80	2.39	2.12	2.12	2.11
Machinery Prices (%)		2.47	2.97	-0.87	1.50	0.75	0.54	-0.06	0.28
Fuel and Lube Prices (%)		0.49	-6.48	-1.67	1.99	3.09	1.59	1.63	1.84
Labor (%)		2.48	3.91	0.89	5.82	4.64	3.82	3.47	4.01
Other Input Prices (%)		-0.06	-2.48	-0.47	1.88	1.52	2.14	2.40	2.37
Non-Feed Dairy Costs (%)		4.04	-1.24	0.92	0.00	0.08	0.78	0.76	1.02
Non-Feed Beef Costs (%)		5.52	-2.17	0.22	3.46	2.09	2.19	2.20	1.35
Non-Feed Hog Costs (%)		-0.89	2.69	-0.04	3.39	1.63	2.39	2.21	2.39
<b>Annual Change in Consumer Price Index (%)</b>									
		2.34	1.56	2.18	2.50	2.55	2.28	2.38	2.39
<b>Annual Interest Rates</b>									
Long-Term (%)		7.69	7.10	7.53	7.74	7.77	7.60	7.45	7.42
Intermediate-Term (%)		8.44	8.35	7.95	8.23	8.23	8.23	8.23	8.23
Savings Account (%)		4.44	4.35	3.95	4.23	4.23	4.23	4.23	4.23
<b>Annual Rate of Change for U.S. Land Prices (%)</b>									
		4.40	5.18	1.85	-0.83	-0.72	-2.78	-2.13	-0.98

Source: Food and Agricultural Policy Research Institute (FAPRI) at the University of Missouri-Columbia and Iowa State University.

- **Net Cash Farm Income** -- equals total cash receipts minus all cash expenses. Net cash farm income is used to pay family living expenses, principal payments, income taxes, self employment taxes, and machinery replacement costs. The values in Table 2 are the averages for each year in the planning horizon.
- **Probability of a Cash Flow Deficit** -- is the number of times out of 100 that the farm's annual net cash farm income does not exceed cash requirements for family living, principal payments, taxes (income and self-employment), and actual machinery replacement expenses (not depreciation). This probability is reported for each year of the planning horizon to indicate whether the cash flow risk for a farm increases or decreases over the planning horizon.
- **Ending Cash Reserves** -- equals total cash on hand at the end of the year. Ending cash equals beginning cash reserves plus net cash farm income and interest earned on cash reserves less principal payments, federal taxes (income and self employment), state income taxes, family living withdrawals, and actual machinery replacement costs (not depreciation).
- **Probability of Refinancing Deficits** -- is the number of times out of 100 that cash flow deficits are greater than available cash reserves. This probability is reported for each year of the planning horizon to indicate whether the financial risk for a farm increases or decreases over the planning horizon.
- **Nominal Net Worth** -- equity at the end of each year equals total assets including land minus total debt from all sources. Net worth is not adjusted for inflation and averages are reported for each year in the planning horizon.
- **Probability of Losing Real Net Worth** -- is the number of times out of 100 that real net worth is less than the net worth for the farm at the beginning of 2000. The probability is reported for each year of the planning horizon to indicate whether the equity risk is increasing or decreasing from the base year of 1999.

### **AFPC Representative Cotton Farm Economic and Financial Impacts**

The information in Table 2 provides the detailed financial projections for each of the nine representative cotton farms. The following observations are provided:

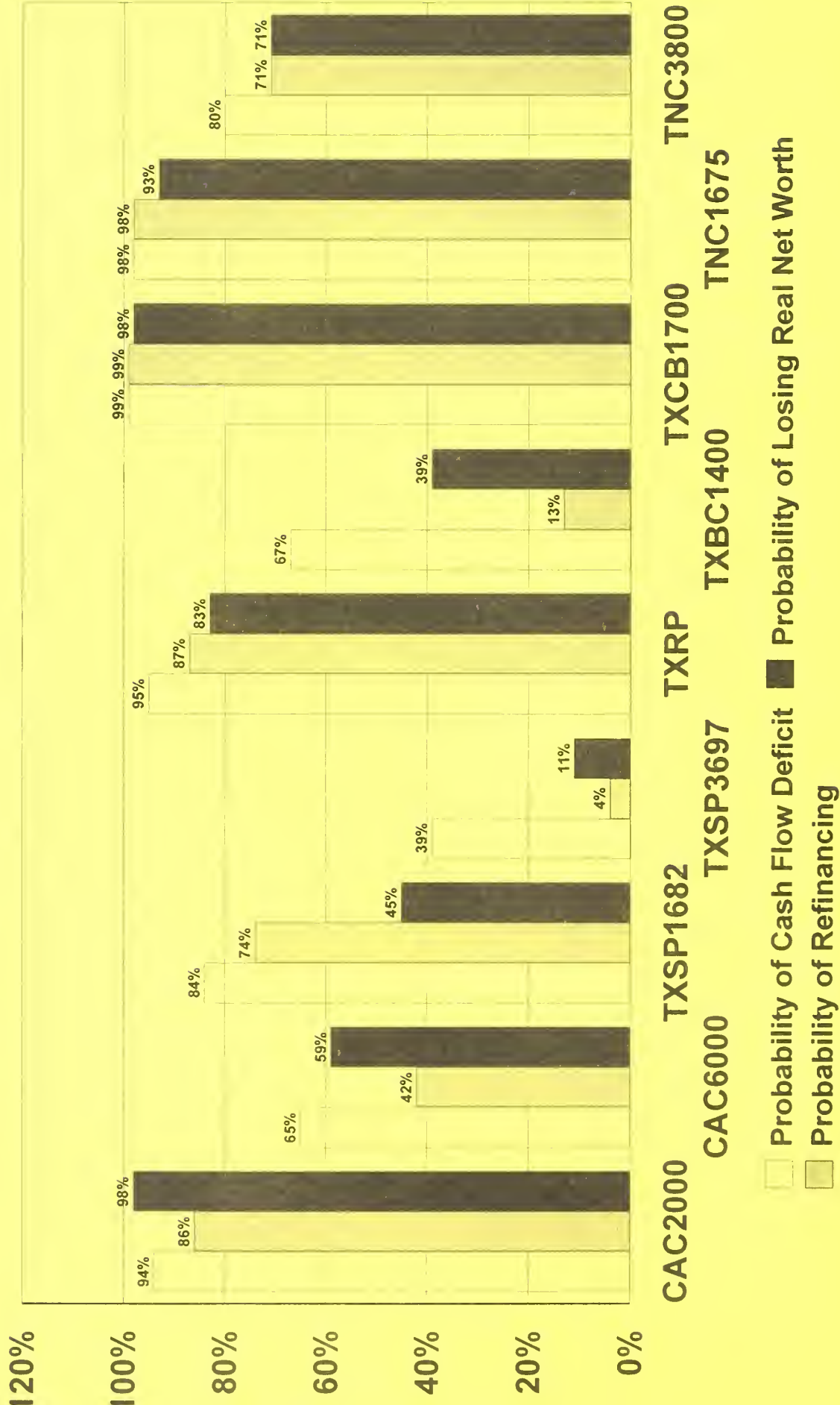
- As a result of relatively low projected cotton prices ranging from 47¢/lb. in 2000 to 54¢/lb. by 2004, all nine cotton farms experience cash flow problems. With the exception of the large Texas Southern Plains, farm the probability of experiencing a cash flow deficit in 2004 ranges from 65 percent for the large California operation (CAC6000) to 99 percent for the Texas Coastal Bend (TXCB1700). Even the large Texas Southern Plains farm (TXSP3697) experiences a cash flow deficit in 39 percent of the simulations (Figure 2).
- Six of the nine cotton farms will likely have trouble refinancing the cash flow deficits from current assets. The probability that these farms will have to seek external refinancing by 2004 ranges from 71 percent for the large Tennessee farm (TNC3800) to 98 percent or more for the Texas Coastal Bend (TXCB1700) and moderate Tennessee farm (TNC1675). The large Texas Southern Plain (TXSP3697) and the Texas Blacklands (TXBC1400) appear capable of covering cash flow deficits from current assets. With a 42 percent probability of refinancing in 2004, the large California farm (CAC6000) is vulnerable (Figure 2).

Table 2. Implications of the 1996 Farm Bill and the January 2000 FAPRI Baseline on the Economic Viability of Representative Farms Primarily Producing Cotton.

	CAC2000	CAC6000	TXSP1682	TXSP3697	TXRP2500	TXBC1400	TXCB1700	TNC1675	TNC3800
Annual Change Real Net Worth (%)									
2000-2004 Average	-4.02	-2.22	0.91	4.76	-13.56	0.59	-22.69	-9.04	-2.91
Net Income Adjustment (NIA)									
2000-2004 (\$1,000)	244.67	672.09	37.78	-28.55	58.94	16.34	99.29	101.72	217.68
Net Income Adjustment (NIA)									
2000-2004 (% Receipts)	17.69	8.80	7.45	-2.87	25.97	6.86	27.80	18.62	16.34
Cost to Receipts Ratio (%)									
2000-2004 Average	100.16	101.06	82.06	76.86	102.30	73.75	111.46	97.28	101.03
Govt Payments/Receipts (%)									
2000-2004 Average	9.67	4.56	8.85	11.96	17.89	13.21	16.92	14.70	13.79
Total Cash Receipts (\$1000)									
1996	1,560.08	8,160.15	198.65	733.22	179.37	146.08	225.36	534.25	1,429.58
1997	1,517.12	7,637.64	298.88	995.70	231.96	287.92	424.91	589.20	1,436.25
1998	1,541.37	7,764.75	186.27	687.31	153.60	198.40	268.00	522.07	1,290.11
1999	1,562.99	8,019.24	528.39	1,066.90	232.46	297.26	581.29	377.34	1,110.16
2000	1,362.41	7,405.29	490.47	960.25	214.87	231.20	347.56	542.24	1,273.08
2001	1,373.19	7,592.54	500.15	979.65	223.07	235.00	350.16	527.96	1,296.78
2002	1,374.62	7,635.49	506.18	988.25	223.73	235.09	351.96	534.90	1,313.41
2003	1,392.00	7,734.11	514.32	1,013.15	232.48	242.00	362.38	553.05	1,357.97
2004	1,413.05	7,830.40	525.14	1,038.44	240.48	248.32	373.60	573.69	1,418.85
Net Cash Farm Income (\$1000)									
1996	244.52	943.71	11.10	82.33	12.51	-19.61	-56.58	45.98	253.48
1997	229.30	608.51	73.57	292.01	49.81	117.51	77.75	112.08	285.63
1998	260.40	755.63	-10.11	46.24	-11.27	32.49	-26.01	42.59	143.46
1999	280.94	760.69	156.11	385.90	54.17	119.05	156.05	-91.90	-17.08
2000	42.62	55.47	93.38	234.96	16.25	63.44	-4.20	41.91	97.66
2001	34.52	251.33	96.14	248.53	26.88	65.68	-12.63	14.90	92.48
2002	15.58	250.56	99.53	254.42	24.15	66.49	-22.51	6.34	84.71
2003	6.82	232.58	104.73	266.44	20.73	72.44	-26.83	38.18	179.03
2004	0.47	201.66	102.99	274.40	16.34	65.74	-36.07	46.88	201.87
Prob. of a Cash Flow Deficit (%)									
2000	82	65	95	35	88	44	99	99	61
2001	89	65	82	40	88	50	99	99	79
2002	84	56	78	32	85	28	99	98	78
2003	92	67	78	37	90	29	99	99	78
2004	94	65	84	39	95	67	99	98	80
Ending Cash Reserves (\$1000)									
1996	104.33	394.64	-60.88	-19.14	-25.86	-57.45	-97.78	-7.75	119.54
1997	181.28	587.94	-63.64	118.53	-14.40	9.70	-62.72	28.56	240.74
1998	262.66	865.21	-144.88	37.45	-65.78	0.65	-132.87	13.60	230.52
1999	338.50	1,145.26	-68.01	226.55	-52.62	49.11	-40.00	-126.82	29.96
2000	242.45	805.74	-77.41	271.35	-75.57	54.48	-99.92	-156.96	-84.03
2001	75.68	637.78	-73.00	308.42	-91.17	58.85	-175.28	-242.74	-255.32
2002	-74.46	440.87	-69.68	368.80	-108.91	76.27	-251.85	-317.03	-377.45
2003	-252.57	239.14	-70.79	419.40	-142.87	97.26	-339.69	-375.47	-433.38
2004	-433.13	17.72	-83.01	482.29	-204.25	87.50	-444.43	-435.10	-503.77
Prob. of Refinancing Deficits (%)									
2000	6	20	95	2	88	1	99	99	59
2001	31	32	81	2	84	1	99	99	70
2002	58	38	78	2	81	3	99	98	70
2003	77	40	74	5	87	4	98	99	68
2004	86	42	74	4	87	13	99	98	71
Nominal Net Worth (\$1000)									
1996	3,132.00	9,721.52	471.33	1,005.33	261.29	411.28	281.71	690.68	3,222.56
1997	3,350.08	10,485.11	491.04	1,178.06	266.58	489.30	320.80	736.52	3,423.86
1998	3,613.92	11,457.18	432.41	1,150.74	222.07	488.71	258.91	738.62	3,544.16
1999	3,779.80	12,055.54	526.00	1,383.58	246.40	541.61	358.54	603.18	3,409.59
2000	3,666.52	11,690.92	530.21	1,431.24	220.37	546.20	297.30	577.06	3,310.98
2001	3,530.77	11,525.17	538.60	1,493.63	196.26	551.34	225.83	511.47	3,188.06
2002	3,351.30	11,177.32	543.63	1,572.87	168.08	553.31	141.30	426.80	3,036.61
2003	3,172.11	10,902.88	547.91	1,629.56	127.57	581.21	52.32	373.18	2,966.01
2004	3,033.16	10,762.18	552.14	1,720.08	79.69	559.95	-48.43	331.77	2,926.23
Prob. of Losing Real Net Worth (%)									
2000	86	65	44	34	67	46	93	60	61
2001	92	66	46	28	67	42	97	82	69
2002	97	62	46	18	77	42	99	91	70
2003	98	61	45	19	80	38	98	90	68
2004	98	59	45	11	83	39	98	93	71



# Figure 2. Probability of Economic Viability for Representative Cotton Farms, 2004



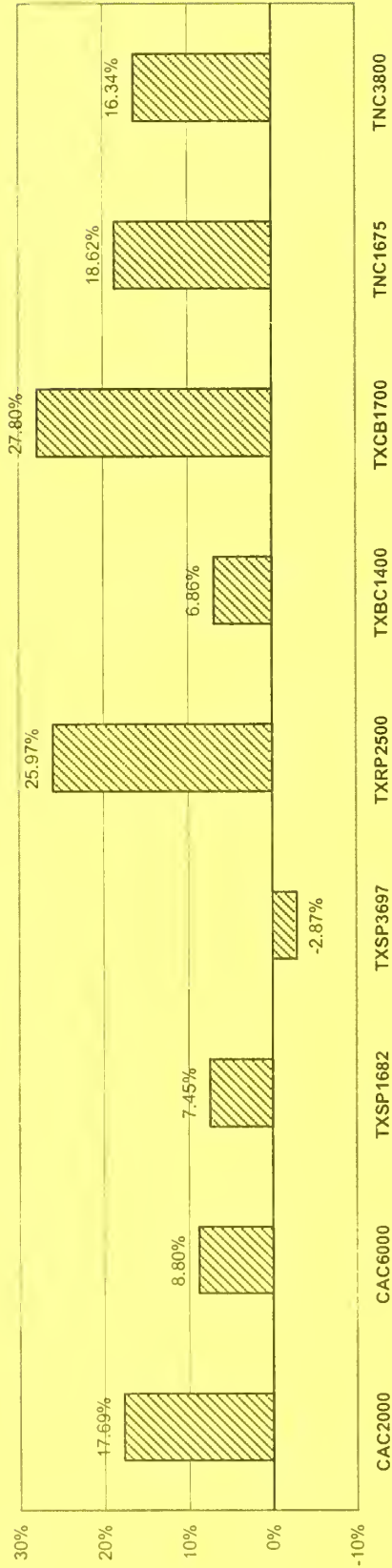
- Eight of the nine farms experience significant probabilities of losing real net worth over the study period. The probability of declining farm wealth by 2004 exceeds 55 percent for 6 of the farms, while approaching 40 percent for the TXSP1682 and TXBC1400. Only the TXSP3697 operation appears capable of maintaining firm wealth over 89 percent of the simulations (Figure 2).
- Overall, seven of the nine cotton farms will likely require additional assistance to remain economically viable over the 2000-2004 study period. The Texas Coastal Bend farm is vulnerable, while the large Texas Southern Plains farm appears capable of coping during the period (Figure 3, Panel B).
- The annual net income adjustments (NIA) in Table 2 and Figure 3 (Panel A), indicate that cash receipts in 2000-2004 need to be increased 7-27 percent annually to move the farms in a marginal or bad position to a good financial position. The one farm that is in a good financial position (TXSP3697) would move to a marginal position if its cash receipts fell by more than 2.9 percent each year.

### **Summary**

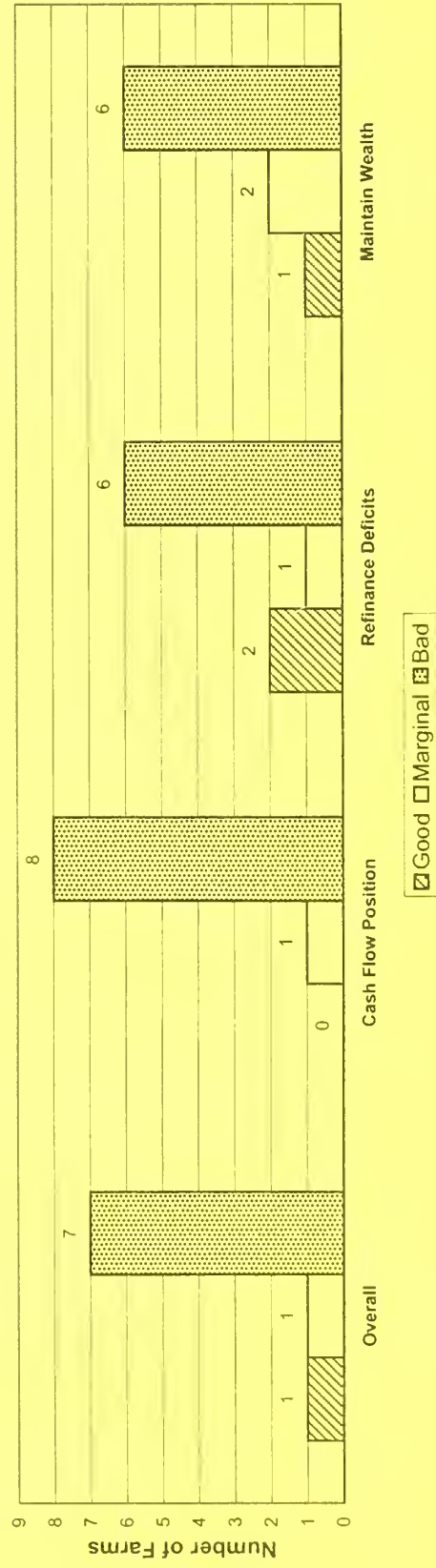
The representative cotton farms are under substantial cash flow pressure given projected prices, input inflation and government assistance. These commercial cotton farms will likely need additional government assistance to financially survive through 2004 without serious equity erosion unless prices increase significantly above current expectations.

# Figure 3. Cotton Farms

## Minimum Annual Percentage Change in Receipts, 2000-2004, Needed to Achieve or Maintain a Good Overall Financial Position



## Economic and Financial Position Over the Period, 2000-2004, for all Cotton Farms





**APPENDIX**  
**1999 CHARACTERISTICS OF PANEL FARMS PRODUCING COTTON**

- CAC2000** A 2,000-acre Central San Joaquin Valley California (Kings County) moderate size cotton farm that plants 600 acres of cotton, 600 acres of wheat, 400 acres of corn, and 600 acres of hay. The farm generates 51 percent of its gross income from cotton.
- CAC6000** A 6,000-acre Central San Joaquin Valley California (Kings County) large cotton farm harvesting 2,400 acres of cotton, 2,100 acres of vegetables and almonds, 600 acres of wheat, 300 acres of corn, and 600 acres of hay. Vegetables on this farm vary from year to year depending on the price of the various vegetables, however, the returns to this 2,100 acres remain relatively stable over time. Cotton generates about 40 percent of this farm's receipts.
- TXSP1682** A 1,682-acre Texas Southern High Plains (Dawson County) moderate size cotton farm plants 1,185 acres of cotton (866 dryland and 319 irrigated), 196 acres of peanuts, and has 183 acres in CRP. This farm is just now starting to adopt the irrigation practices of its larger counterpart. The farm generates 60 percent of its receipts from cotton.
- TXSP3697** A 3,697-acre Texas Southern High Plains (Dawson County) large cotton farm plants 2,665 acres of cotton (2,095 dryland and 570 irrigated), 285 acres of peanuts, and has 214 acres in CRP. Cotton generates 75 percent of this farm's receipts.
- TXRP2500** A 2,500-acre Texas Rolling Plains (Jones County) cotton farm that plants 1,240 acres of cotton, and 825 acres of wheat. About 70 percent of this farm's receipts are derived from cotton.
- TXBC1400** A 1,400-acre Texas Blacklands (Williamson County) moderate size cotton and grain farm has 350 acres of cotton, 400 acres of sorghum, 550 acres of corn, and 100 acres of wheat. This farm also has 50 breeding cows which are pastured on rented land that cannot be cropped. Cotton generates 44 percent of the farms receipts.
- TXCB1700** A 1,700-acre Texas Coastal Bend (San Patricio County) cotton farm has 765 acres of cotton and 935 acres of grain sorghum. Severe disease problems force this farm to plant at a minimum 50 percent of the land to grain sorghum. About 74 percent of the receipts are cotton receipts.
- TNC1675** A 1,675-acre Southwest Tennessee (Fayette County) cotton farm has 838 acres of cotton, 670 acres of soybeans, and 168 acres of corn. The farm generates about 74 percent of its cash receipts from cotton.
- TNC3800** A 3,800-acre Southwest Tennessee (Haywood County) cotton farm has 2,508 acres of cotton, 760 acres of soybeans, 300 acres of wheat, and 532 acres of corn. The farm generates about 79 percent of its cash receipts from cotton.

Appendix Table A1 Characteristics of Panel Farms Producing Cotton.

	CAC2000	CAC6000	TXSP1682	TXSP3697	TXRP2500	TXBC1400	TXCB1700	TNC1675	TNC3800
County	Kings	Kings	Dawson	Dawson	Jones	Williamson	San Patricio	Fayette	Haywood
Total Cropland	2,000	6,000	1,682	3,697	2,500	1,400	1,700	1,675	3,800
Acres Owned	1,000	4,800	606	1,627	400	150	300	225	1,520
Acres Leased	1,000	1,200	1,076	2,070	2,100	1,250	1,400	1,450	2,280
Pastureland									
Acres Owned	0	0	0	0	0	30	0	0	0
Acres Leased	0	0	0	0	500	210	0	0	0
Assets (\$1000)									
Total	4,425	14,032	701	1,692	326	617	533	854	4,242
Real Estate	3,638	12,880	365	781	168	329	295	586	2,879
Machinery	449	8	337	684	151	209	238	268	1,333
Other & Livestock	338	1,145	0	227	7	79	0	0	30
Debt/Asset Ratios									
Total	0.15	0.14	0.25	0.18	0.24	0.12	0.33	0.29	0.20
Intermediate	0.10	0.00	0.37	0.22	0.33	0.08	0.54	0.59	0.27
Long Run	0.16	0.15	0.14	0.14	0.16	0.16	0.16	0.16	0.16
Number of Livestock									
Beef Cows	0	0	0	0	0	50	0	0	0
1999 Gross Receipts (\$1,000)*									
Total	1,563.0	8,019.2	528.4	1,066.9	232.5	297.3	581.3	377.3	1,110.2
Cattle	0.0 0.00%	0.0 0.00%	0.0 0.00%	0.0 0.00%	0.0 0.00%	17.3 5.80%	0.0 0.00%	0.0 0.00%	0.0 0.00%
Cotton	799.8 51.20%	3,230.1 40.30%	316.7 59.90%	794.7 74.50%	161.7 69.60%	130.6 44.00%	434.6 74.80%	280.4 74.30%	881.0 79.40%
Sorghum	0.0 0.00%	0.0 0.00%	0.0 0.00%	0.0 0.00%	0.0 0.00%	54.9 18.50%	132.1 22.70%	0.0 0.00%	0.0 0.00%
Wheat	195.2 12.50%	291.8 3.60%	0.0 0.00%	0.0 0.00%	46.0 19.80%	7.1 2.40%	0.0 0.00%	0.0 0.00%	46.9 4.20%
Soybeans	0.0 0.00%	0.0 0.00%	0.0 0.00%	0.0 0.00%	0.0 0.00%	0.0 0.00%	0.0 0.00%	59.1 15.70%	65.3 5.90%
Corn	204.9 13.10%	92.8 1.20%	0.0 0.00%	0.0 0.00%	0.0 0.00%	82.4 27.70%	0.0 0.00%	36.4 9.60%	108.2 9.70%
Hay	363.1 23.20%	430.5 5.40%	0.0 0.00%	0.0 0.00%	0.0 0.00%	0.0 0.00%	0.0 0.00%	0.0 0.00%	0.0 0.00%
Quota Peanuts	0.0 0.00%	0.0 0.00%	76.9 14.60%	0.0 0.00%	0.0 0.00%	0.0 0.00%	0.0 0.00%	0.0 0.00%	0.0 0.00%
Additional Peanuts	0.0 0.00%	0.0 0.00%	89.5 16.90%	192.5 18.00%	0.0 0.00%	0.0 0.00%	0.0 0.00%	0.0 0.00%	0.0 0.00%
Other Receipts	0.0 0.00%	3,974.0 49.60%	39.6 7.50%	75.3 7.10%	24.8 10.70%	5.0 1.70%	14.6 2.50%	0.0 0.00%	7.0 0.60%
1999 Planted Acres**									
Total	2,200.0	6,000.0	1,564.0	3,164.0	2,065.0	1,400.0	1,700.0	1,675.0	4,100.0
Cotton	600.0 27.30%	2,400.0 40.00%	1,185.0 75.80%	2,665.0 84.20%	1,240.0 60.00%	350.0 25.00%	765.0 45.00%	837.5 50.00%	2,508.0 61.20%
Sorghum	0.0 0.00%	0.0 0.00%	0.0 0.00%	0.0 0.00%	0.0 0.00%	400.0 28.60%	935.0 55.00%	0.0 0.00%	0.0 0.00%
Wheat	600.0 27.30%	600.0 10.00%	0.0 0.00%	0.0 0.00%	825.0 40.00%	100.0 7.10%	0.0 0.00%	0.0 0.00%	300.0 7.30%
Soybeans	0.0 0.00%	0.0 0.00%	0.0 0.00%	0.0 0.00%	0.0 0.00%	0.0 0.00%	0.0 0.00%	670.0 40.00%	760.0 18.50%
Corn	400.0 18.20%	300.0 5.00%	0.0 0.00%	0.0 0.00%	0.0 0.00%	550.0 39.30%	0.0 0.00%	167.5 10.00%	532.0 13.00%
Hay	600.0 27.30%	600.0 10.00%	0.0 0.00%	0.0 0.00%	0.0 0.00%	0.0 0.00%	0.0 0.00%	0.0 0.00%	0.0 0.00%
Quota Peanuts	0.0 0.00%	0.0 0.00%	65.0 4.20%	0.0 0.00%	0.0 0.00%	0.0 0.00%	0.0 0.00%	0.0 0.00%	0.0 0.00%
Additional Peanuts	0.0 0.00%	0.0 0.00%	131.0 8.40%	285.0 9.00%	0.0 0.00%	0.0 0.00%	0.0 0.00%	0.0 0.00%	0.0 0.00%
Vegetables	0.0 0.00%	2,100.0 35.00%	0.0 0.00%	0.0 0.00%	0.0 0.00%	0.0 0.00%	0.0 0.00%	0.0 0.00%	0.0 0.00%
CRP	0.0 0.00%	0.0 0.00%	183.0 11.70%	214.0 6.80%	0.0 0.00%	0.0 0.00%	0.0 0.00%	0.0 0.00%	0.0 0.00%

\*Receipts for 1999 are included to indicate the relative importance of each enterprise to the farm. Percents indicate the percentage of the total receipts accounted for by the livestock categories and the crops.

\*\*Acreages for 1999 are included to indicate the relative importance of each enterprise to the farm. Total planted acreage may exceed total cropland available due to double cropping. Percents indicate the percentage of total planted acreage accounted for by the crop.

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Mr. Tom Karcher

Mr. Mark McNabb

Mr. Dewayne Hendrix

Mr. Ronald Woods



## **China's Cotton Reform Policy and Its Market Implications**

Haowu Ding

Executive Manager

China National Cotton Exchange

Mr. Chairman, ladies and gentlemen, and friends of the cotton industry:

First, I would like to thank the USDA's World Agricultural Outlook Board and the Economic Research Service for this special invitation to attend the USDA Outlook Forum 2000 Cotton Session. It gives me an opportunity to speak and exchange our views on China's cotton market, to discuss our problems, and to strengthen our friendship.

In recent years, cotton analysts around the world have been closely watching China's cotton policy and marketing reforms. They also have watched changes in prices, the supply and demand balance in China, and its possible impacts on the world market. In fact, in an increasingly integrated world economy, any policy changes in China -- the world's largest cotton user -- will have significant impacts on the world market. Today, I would like to address some of these concerns.

### **I. Major Features of China's Cotton Marketing Reform**

For the past 50 years, with only a few exceptions, China's centrally planned cotton management system has contributed to a steady increase of cotton production, protected farm household income, stabilized cotton prices, supported the textile industry, and promoted cotton export sales. However, as China moves towards a market-oriented economy, the centrally planned system has become obsolete and has shown weaknesses such as: (1) a highly centralized cotton production policy cannot react to the market changes in a timely manner when textile and farm inputs industries are liberalized; (2) the State management system cannot allocate profits or the use of resources among producers, mills, and commercial sectors; (3) rigid government procurement prices heavily distort the balance between cotton supply and demand; and (4) the micro-management by the government, which tried to separate the three distinct market functions of cotton production, procurement, and sales, has created conflicts of interests among functional groups and added costs of management.

Consequently, since the mid-1990s, the government has decided to reform the cotton marketing system in China. Major reform programs include the following steps: (1) to organize cotton trading events, allowing both buyers and sellers to meet face to face in negotiating mutually beneficial contracts; (2) to allow cotton sale prices to be flexible enough to fluctuate within a range based on market supply and demand conditions; and (3) to adjust cotton procurement prices and authorize cotton companies to buy cotton at a premium or discount, etc.

In late 1998, the government announced that the cotton marketing reform programs would start in the 1999 marketing year (September-August). It was a rare opportunity because China had abundant supplies and faced increasing use of fiber substitutes for cotton. The purpose of the reform was to lead the cotton industry into a market-oriented economy with a better reallocation of resources. Key

programs included in this announcement were: (1) use a suggested, non-binding, government guidance price to replace uniform procurement and sale prices; (2) allow certified mills to buy cotton directly from farmers; (3) promote a cotton quality inspection and grading system; (4) establish and foster the growth of a new national cotton exchange; and (5) re-adjust cotton production areas with an emphasis on increasing yield.

In June 1999, the government implemented more detailed programs to discourage cotton production and to improve cotton marketing in China. They were: (1) control the rate of expansion of Xinjiang's cotton area and reduce cotton production in both the Yangtze and Yellow River basins; (2) emphasize quality differences with higher prices for premium grade cotton starting with 1999 crops; (3) assign responsibility to the provincial governments to manage local production, procurement, and sales; (4) enhance cotton quality standards and strictly forbid blending of different grades of cotton; and (5) separate debts and losses between old and new crops and re-check cotton inventory and business account balances.

These reform programs demonstrate that China is gradually stepping into a new market system which will improve the allocation of resources. In the long-term, these reforms will help China to develop a balance between supply and demand. They will also create an orderly marketing system and move toward a better integrated, more open, and competitive market. Meanwhile, these reforms also will contribute to the stabilization of the world market.

However, it is too early to evaluate and to get a complete picture of the possible impacts resulting from these reforms. On the one hand, the reform was introduced at a time when China has a plentiful supply of cotton. Looking back at history, we see that in most years China has been a net importer. Therefore, cutting back production may create new problems in the future. On the other hand, we still need more program details for implementation. For example, under the new policy direction, how can we be sure that China's cotton production will be stable? The government says it they will use "macro" management methods to control production, market circulation, and uses, but what are these methods? Who is going to take care of cotton producers when government procurement prices no longer exist? As farmers' interest in growing cotton wanes, who can guarantee that cotton production will be sustained? Clearly, all these reforms have long-term implications for the entire cotton industry.

## **II. Current cotton supply and demand situation in China**

Most cotton analysts are familiar with China's cotton supply and demand, but they may be confused by the behavior of China's markets. For example, we see lots of cotton in the warehouses, but local mills cannot find enough domestic supplies. In another puzzling example, while domestic demand is growing, China is exporting cotton to foreign markets. Finally, total domestic supply exceeds demand, but cotton prices are steadily increasing. I believe that these are temporary phenomena, which demonstrate that China's cotton sector is in a transitional period. Also, one can argue that the reform programs are effective and have achieved short-term policy goals. To answer these questions, let us take a look at China's cotton supply and demand balance sheet for 1998/99 and 1999/2000 (see table).



Table 1: Cotton Supply and Uses in China, 1998/99-1999/00

	Unit	1998/99	1999/00 (preliminary)
Areas	Million hectare	4.46	3.75
Production	Million ton	4.50	3.83
Commercialized quantity	Million ton	4.30	3.65
Imports	Million ton	0.07	0.05
Available supply	Million ton	4.37	3.70
Mill use	Million ton	3.70	4.00
Wadding and other uses	Million ton	0.05	0.05
Exports	Million ton	0.18	0.30
Waste	Million ton	0.10	0.10
Total use	Million ton	4.03	4.45

Note: Figures are for a September-August marketing year.

First, let us take a look at cotton supply. In 1999, cotton production decreased because of falling prices, government policies of discouraging sown areas, and local adjustments of rearranging cropping patterns. According to surveys conducted by the National Bureau of Statistics (NBS, formerly known as SSB), cotton area decreased from 4.46 million hectares in 1998 to 3.75 million hectares in 1999, a decrease of 16 percent. Cotton production decreased from 4.5 million tons in 1998 to 3.83 million tons in 1999, a decrease of 15 percent. After we deduct farmers' on-farm use from their production, the 1999 quantity available for commercial use is estimated at 3.65 million tons, a drop of 0.65 million tons from the 1998 level.

On the demand side, a NBS survey showed that 30.8 million pieces of yarn were produced in 1998. If we assume that cotton accounted for 64 percent of the total fiber used in yarn production, then we estimate that mill use was about 3.7 million tons in 1998. Since the second half of 1999, China's textile exports have stayed strong. Total yarn production was estimated about 32.3 million pieces in 1999, an increase of 5 percent from previous year. Assuming the same 64 percent of cotton used in yarn production, mill use could be 4 million tons in 1999. Wadding, wastes, and other uses accounted for 0.15 million tons. Exports were estimated at 0.3 million tons. Therefore, total demand of various uses summed up to 4.45 million tons, which exceeded 1998's 4.03 million tons by 0.42 million tons. At the end of this balance sheet, the gap between supply and use was a shortfall of 750,000 tons for 1999.

You may have noticed that this balance sheet is different from USDA's balance sheet, lacking beginning and ending stocks. When the cotton marketing reform was implemented in 1999, one of the government rules was that cotton companies have to separate old crop losses or debts from the accounting for the new crop. Because new crop prices were much lower than the 1998 crop's procurement costs, cotton companies were unable to sell 1998 cotton to any market with a profit. In other words, no 1998-crop cotton could be made available for the 1999/2000 market. Therefore, the beginning stock for 1999/2000 is effectively zero. However, there were about 100,000 tons (approximately enough for 10 days mill use) of 1998 cotton already in the pipeline at the beginning of 1999/2000. If we deduct this 100,000 tons from the 750,000-ton gap between supply and use for 1999/2000, the actual expected gap is about 650,000 tons.



Because of surplus cotton accumulated during past several years, China's government made an early decision at the beginning of 1999 to export cotton to the world market. However, in reality, these export sales have enlarged the gap in the 1999 marketing year; consequently, domestic cotton prices have increased throughout the year. Now, China still has plenty of 1998 or earlier cotton stored in the warehouses.

### **III. How cotton prices were established and price trend**

In 1999, which was the first year for the implementation of China's cotton reform program, producers, mills, cotton companies have all watched changes of prices at various stages in the marketing chain. Buyers and sellers were continuously searching for better prices and continuously making pricing decisions. They want to be sure that prices are formulated through competition and that these observed prices really reflect changing conditions of market supply and demand.

In general, China's cotton procurement price formation can be analyzed by following it through four distinct stages: (1) before planting season begins, the government announces a guidance price as a reference point for future procurement purposes. This guidance price is calculated using multiple economic factors such as farm input costs, labor costs, price ratios between grain and cotton, domestic market conditions, and a nominal price trend. This guidance price is a non-binding agreement between producers and the government. It serves as a reference price for farmers to make planting decisions only; (2) before farmers turn in their cotton to local procurement stations, the All-China Federation of Supply and Marketing Cooperatives will conduct surveys and then suggest a procurement price for local cotton companies; (3) to avoid price differentials between regions, counties, or between different business entities, local procurement prices will be cross-checked by government procurement stations and mills in the same locality, possibly including neighboring counties or provinces when necessary; and (4) local procurement prices can be adjusted, up or down, according to changes in the market.

Xinjiang is the only major cotton production province for which China's government announced a 1999 procurement price. The price for Xinjiang's standard grade cotton was 7,400 yuan per ton, with a between-grade price differential of 5 percent. Procurement prices ranged between 7,600 and 8,000 yuan per ton in the Yangtze River basin while the price range was between 7,200 and 7,600 yuan per ton in the Yellow River basin. Prices were low when new crop sales started, then prices rose gradually, and reached between 8,000 and 8,400 yuan per ton.

The formula for calculating the cotton sale price is more complicated, and also more sensitive. The sale price is based on local cotton companies' procurement price plus administrative, ginning, inspection, baling, storage, and shipping costs. Also, the price includes interest on commercial loans and relevant taxes and fees. Cotton business entities, mostly cotton companies, would offer a price to local cotton warehouses based on the market condition of yarn prices plus a profit margin for the supplier.

Cotton companies can receive nation-wide price information from 100 or more markets through their computer networks. They also can subscribe and receive published newsletters on a regular basis. The newly established China National Cotton Exchange (see Section V) also provides daily price information to the public.

Since the 1999 new crop cotton began entering the market, with the exception of few short periods of price stagnation or slight declines, cotton prices have risen steadily. In October 1999, the price for the standard grade of 327 was around 8,600 yuan per ton. Since November, as cotton production and procurement quota amounts became apparent, and since textile products sales to foreign and domestic

markets were increasing, average cotton prices increased about 100 yuan each week. In late January 2000, standard grade of 327 was approaching 10,500 yuan per ton, while grade 229 has exceeded 11,000 yuan per ton.

I believe that cotton prices will keep on rising for next several months for the following three reasons: (1) although government has two separate treatments for new and old cotton (where “old ” cotton refers to cotton stored in warehouses at the end of 1998/99) and we still have an overall surplus, I see a shortfall of cotton in the coming year if the old cotton remains in storage; (2) thanks to the recovery of the Southeast Asia economy, I have seen increasing yarn production and growing export sales of textile products from China; and (3) prices of synthetic fibers have stayed high and the blending rate of cotton in fiber consumption is increasing.

I am unable to tell how far the cotton price will rise. It depends on specific government decisions about what to do with the 1998 and earlier stored crops. If the government authorizes sales of the 1998 cotton, it implies that the government is willing to take a loss, or to subsidize domestic cotton companies, or to let go interest payments incurred from the existing debts. This decision would be helpful to stabilize market prices. On the contrary, if the government does not want to sell 1998 cotton, it means that cotton stored in the warehouses cannot be moved into commercial channels, and prices will rise.

While the centrally planned management system has been discarded, the new market order has not yet been fully established. Most transactions have been conducted on a person-to-person basis with negotiations and inspections on the spot. The sales were made in an inefficient manner and buyers had no way to diversify their risk. If the price trend is rising, buyers face no risk. But, if the prices start to fall, buyers will have no recourse but to lose money.

#### **IV. Forecasts of China's Cotton Production in 2000**

In China, there are five key factors that influence a producer's planting decision: (1) the State intervention policy of encouraging or limiting sown areas; (2) the level of cotton procurement price and its relative position compared to grains; (3) yields and land fertility that are directly linked to household income; (4) weather; and (5) local cropping patterns, especially where cotton is inter-cropped with winter wheat. The first three factors listed above are the most important.

In 1999, the average procurement price for roller-ginned cotton ranged between 380 and 400 yuan per dan, a significant drop of 35 to 38 percent from the previous year's level. Based on the available commercial supply of 73 million dan (or 3.65 million tons), we calculated that farmers' income from cotton declined 15.8 to 17.3 billion yuan due to the drop in procurement prices. It was a record loss.

When we look at national average price levels, the procurement prices were near or even below the costs of production. Producers earned no profit in 1999. Now, the government is still discouraging cotton production. Therefore, it is clear that China's cotton areas will be reduced further and production will decrease again in 2000. There will be some regional differences in these decreases. For instance, Xinjiang has better weather and irrigation systems, fewer pest problems, and lower production costs. Producers in Xinjiang can maintain or slightly drop their planted areas even when they are facing a decrease in the procurement price because planting cotton can generate higher income than planting alternative crops. We estimate that Xinjiang will have 14 million mu (or 0.93 million hectares) of sown area, with an estimated production of 1.35 million tons.



Producers in the Yangtze River basin have more options. High yield farmers will continue to plant cotton while low yield farmers will be forced to plant alternative crops. We estimate that total area in Yangtze River basin will decrease from 18.5 million mu in 1999 to 16 million mu (or 1.07 million hectares), with an estimated production of 1.1 million tons.

The Yellow River basin area producers have a long history of including cotton as a part of their cropping pattern. In Henan, farmers are accustomed to inter-cropping wheat and cotton because it generates a profitable income possibility for them. Also, it takes time for farmers to switch between crops. In Shandong, after many years of reductions, cotton area has fallen and approached its lowest point. There is little room to drop any further. Hebei province has successfully tested pest-resistant new varieties in recent years. Farmers are now willing to plant more cotton and we have seen the rising trend in sown area in recent years. Therefore, we estimate that total area in the Yellow River basin will be no less than 16 million mu (or 1.07 million hectares), with an estimated production of 0.95 million tons.

In summary, total area reduction will be 5 million mu for the crop in 2000, a decrease of 8 to 10 percent. Total production is estimated at 3.5 million tons, another drop of 300,000 to 350,000 tons from 1999. Lower area and production will help China re-balance supply and demand, and also reduce the pressure from mounting inventories. However, a severe cutback in cotton production is a de-stabilizing influence that may hurt producers and their willingness to again risk planting cotton. This dramatic drop could have negative repercussions and create undesirable price and production instability.

The above analysis is preliminary based on our limited information. Actual planting area will depend on the future development of weather conditions, expected market returns of cotton, and government support policies for both cotton and competing grains.

## **V. An Introduction of China's National Cotton Exchange**

In late 1998, the government firmly stated that cotton marketing reform has to "foster a cotton trading place, promote orderly marketing of cotton." Therefore, we decided to establish the China National Cotton Exchange (CNCE), which serves as the center for trading cotton in China. CNCE has established a computerized network to manage all trade and sales. The computerized system also can disseminate price information to the public. I would like to use this opportunity to provide a brief introduction of the CNCE.

CNCE was established based on the government decision. It is a market sponsored by the All-China Federation of Supply and Marketing Cooperatives. CNCE is a nonprofit organization with the sole purpose of serving the cotton industry. There are 13 supervisory agencies that oversee the operation of CNCE including the State Planning and Development Commission, Ministry of Finance, State Bureau of Textile Industry, Ministry of Agriculture, State Bureau of Business Administration, State Bureau of Technical Supervision, and China Agricultural Development Bank, etc. The CNCE is headquartered in Beijing, with 20 branch offices in major cotton production and consumption areas. Trading rules and regulations are uniformly applied to headquarters and all branch offices. Computer networks were established between headquarters and branch offices, and among branch offices. CNCE follows the business ethics of openness, fairness, justice, and fidelity. In addition to the market function of price discovery and risk management, the CNCE also provides services such as a financial clearinghouse, quality certification, short-term storage, market information and consultation, and training and education. The State authorizes the CNCE to sell or buy cotton for the State Reserve System; therefore, CNCE can provide balancing transactions to stabilize market prices.



CNCE adopted a membership system. Members include those companies registered in China as a cotton business entity, textile industry, import and export trading companies, and other eligible cotton business operations in China. Currently, CNCE has 70 members. Among them, there are 53 cotton business entities, 12 textile mills and companies, and one cotton import and export trading company. The government also authorizes four regulatory agencies as members. CNCE members can serve as brokers in helping non-member companies to get involved with trading activities. Non-members have complete freedom to choose among members, but can have no direct business relationship with CNCE.

The CNCE has completed preparations for floor trading activities and is testing the procedures. From October 1999 to the end of January 2000 testing period, CNCE has completed sales of 130,000 tons of old crop cotton stored in the warehouses, valued at 1.2 billion yuan. These sales were made through a competitive bidding process. First, cotton warehouses made assembled lots of cotton. Each lot's tonnage usually weighs between 120, 500, or 1,000 tons. Then the public sales were made for these lots. Total weights and initial offering prices of each lot were announced to CNCE members before the sale. Offering bid prices were based on the salvage costs from warehouse and were converted to RMB/ton. To ensure that the bidding process is competitive, the computer will wait for 2 minutes for each new bid before closing the deal. If no buyer makes a new bid within the 2-minute waiting period, then the transaction is completed. CNCE members have an equal footing and should have enough time to participate in and to respond to the floor activities. When the transaction is completed, both buyer and seller receive a computer printout of final bid and the entire contract immediately.

Now, when we look at the history of CNCE final bidding prices, we conclude that the CNCE has provided a mechanism for establishing cotton prices in China based on market supply and demand. This is a good start. We hope that CNCE will contribute more to China and world cotton markets in the future.

We welcome all of you as friends to visit and tour our Exchange. We are also willing to find mutually beneficial, cooperative opportunities to work together.

Thank you.

[Conversion factors: 1 hectare = 15 mu; 1 ton = 20 dan = 2,204.6 pounds;  
1 dan = 50 kilogram; 1 US\$ = 8.3 yuan (RMB)]

(Translated by Hsin-Hui Hsu, USDA/ERS)

## FUTURE OF THE U.S. SUGAR INDUSTRY IN A CHANGING POLICY ENVIRONMENT

Ben Goodwin  
Executive Manager, California Beet Growers Association

The topic, prospects for change in world sweetener and trade and trade rule, is very apropos. If there is one constant in the sweetener business, it's change. For the best part of the past 70 years, U.S. producers have been isolated from the so-called world market. During this time, substantial changes have occurred to the domestic sugar program and the industry.

Domestic policy has evolved from a very structured system under the Jones Costigan Sugar Act. The industry endured periods without domestic policy when domestic prices went through boom-bust cycles. There were interim stopgap programs to keep sugar producers in business. Since 1985, there have been various scenarios of a USDA non-recourse loan program, and the government has moved the industry toward additional world trade through the WTO and NAFTA.

In reaction to government action toward more open markets, U.S. producers have put into action one of the greatest efforts to streamline the sugar industry. The beet co-ops have installed massive storage buildings to protect a large portion of their beets waiting for processing. They've expanded acreage and production facilities for economy of scale.

Beet growers in Idaho have purchased their processor to determine their own destiny. Growers in Washington State started their own cooperative to increase their cropping options. Florida cane millers have installed refineries on a few of their cane mills or purchased stand-alone refineries to provide an added value to their raw product. A Florida cane producer and a beet co-op entered into a joint marketing venture.

Imperial Sugar Company and their subsidiaries purchased or combined operations of former competitors to reduce costs and increase volume of products. Today, four major sellers market 85 percent of the sugar in the U.S. All these changes have come with costs attached. The industry is highly leveraged. It was projected that the savings and synergisms of the combined operations would be greater than the massive debt incurred. I'm not sure that dream is being realized, especially in light of the recent low sugar prices.

I believe there is a trend toward higher yields in Florida, Louisiana, and some beet areas. I know California producers are setting new standards for yield and sugar content. In fact, for two years in a row, world record beet crops have been produced in California's Imperial Valley.

There's been pain in the industry. I come from a state where disease, competitive crops, and urbanization have taken a toll on beet production. Today, only the efficient remain, and they are in jeopardy. The Hawaiian industry is only one-third of its former size, and the beet processing industry in Texas is just a memory.

The U.S. farm economy is in chaos, and it is reflected in the sugar business. Since 1985, U.S. refined



sugar prices have moved based on market forces or government edict, while the basic loan rate has been unchanged at 18 cents a pound raw value. Domestic raw cane sugar prices only moved in a range of about two cents a pound until this past fall when the market experienced nearly a six cents per pound drop when an oversupply of raw sugar in the U.S. became evident. This Christmas, beet growers learned that the domestic refined price had dropped to the lowest levels since the late 70's and mid 80's. The potential large U.S. production coupled with static consumption was the major cause, but the uncertainties about Mexico's access to the U.S. market, leaks in our border protection, and other governmental actions played a role in the price drop.

Several weeks ago, I was contacted by a sugar economist who does production estimates. He found in his nationwide survey that growers were not backing off on their planting intentions for beets or cane, even with the low prices.

When I visit with growers, their reaction is: I have no cropping alternatives. Either I'll drop my costs to the bare bones and hope to get by this year, or with the new varieties, improved agronomic techniques, and other potential for improved yields, I'll put my beets on the better soils and try to offset the price decline with higher production. Growers are the eternal optimists.

If their bankers will stay with them, growers can try to hold their operations together, but frankly, the growers and industry will suffer. Growers will be living off their equity, hoping for price improvements down the road. Growers will need continual government aid; I've heard this past year that Uncle Sam has infused 15 billion dollars into the farm economy. If commodity prices do not improve, agriculture will need similar help in 2001 or there still will be massive financial problems on the farms across the U.S.

The sugar industry has about three and a half years on the current sugar policy. As it now stands, it expires with the 2002/2003 fiscal year. There is discussion that Congress will revisit the farm legislation this session. To me, it seems a given, with agriculture's financial problems. Will they make sweeping changes? Probably not. I believe the economy is strong enough that the government can afford to make cash infusions into the agriculture sector in an attempt to get through this low price cycle.

Currently, the entire sugar industry's attention is on low prices. I noted in a recent sugar publication that U.S. Sugar Corp. has set up a Profit Enhancement Council to develop ways to cut costs. We're all looking at ways to cut costs. American Crystal has threatened to forfeit sugar, and we hear murmurs of forfeiture from some cane producers. We're all waiting to see when sugar is forfeited under the loan program and, when sugar is forfeited, how the government will manage their inventory.

The rules the industry plays under have changed because of the trade agreements of NAFTA and WTO. In the past, domestic growth was offset by reductions in imports. Today, producers are caught in a squeeze between high production, static low consumption, and a required import. The government has been unwilling to plug border leakages, so unless Mother Nature interacts, we are in for a long siege of low prices.

The U.S. must continue to protect domestic sugar producers from unfair trade practices around the sugar world. No one can produce sugar for the current world price unless they receive governmental help. I don't believe that U.S. trade policy can redirect EU sugar subsidies, convince the Mexican government to shut down inefficient plants, influence Brazil's ethanol program, or make Third World producers meet



U.S. standards in labor and environment.

The form of the future sugar policy is up to some conjecture. I certainly have more questions than answers. Can we stay the course with some modification to the current loan program? Will trade laws allow for U.S. producers to have a sugar program similar to the E.C. with domestic quotas and support coupled with provisions for export of U.S. production at world prices? Can there be some type of target price with payments to growers if the market does not meet the target? I certainly don't have the answers, but the industry will be struggling with these issues as current legislation ends.

It's ironic that in November of last year John Love asked me to participate in this forum. I was hesitant at first, but after some thought, I decided to discuss this issue from a California perspective. Yields were up, and grower confidence in sugar beets was on the mend. What a story. Well, by now, I presume most of you have heard that because of balance sheet problems, Imperial Sugar Company has decided to divest themselves of the Tracy and Woodland plants, not because they're inefficient, but because the land value is greater in reducing the company debt than the factory's operations are in contributing to profitability of the company. They've offered the plants to growers, and our industry is trying, even in the current ag depression, to see if some grower ownership of these facilities might be possible. If we're unsuccessful, it should help the short-term U.S. price situation.

To sum up my remarks, unfortunately, I believe domestic sugar production facilities will close as the industry faces a changing policy environment.

## POTENTIAL BENEFITS OF MANDATORY PRICE REPORTING

Jon Caspers, President  
Pleasant Valley Pork Corporation  
Swaledale, Iowa

Mandatory price reporting has long been debated in the livestock industry. The debate included everything from "A clear form of socialism!" to "Require packers to open their books to the world!" As with most things, somewhere in the middle lay ground that could be claimed as common and useful to all market participants. It was with that goal and the mandate of Congress to "decide something among yourselves that all of you can live with" that pork producers, NPPC staff and pork packers sat down to hammer out a mandatory price reporting system for hogs and the legislation to establish it. The process started last April and resulted in the pork section of the Livestock Mandatory Price Reporting Act of 1999.

The Establishment clause of the bill states that:

"The Secretary shall establish a program of swine price information reporting that will:

- (1) provide timely, accurate, and reliable market information;
- (2) facilitate more informed marketing decision; and
- (3) promote competition in the swine slaughtering industry.

### **What will this law do?**

The Livestock Mandatory Price Reporting Act of 1999 calls for a number of information items regarding hog prices, supplies and characteristics; a catalog of marketing contract information; improved retail price data for pork and other meats; a new form of hog slaughter data; a monthly hogs and pigs inventory report; a study of the Secretary's powers under the Packers and Stockyards Act; and, finally a study of trim losses in the pork packing sector.

### Daily hog market information

1. Requires 100 percent participation by packers that represent over 100,000 head per year. This covers over 95 percent of U.S. hog slaughter. The benefit of this provision will be that there will be few, if any, "hidden deals" thus lending more transparency to the hog market and hopefully engendering less suspicion of preferential treatment.
2. Provides actual data for the day prior to the report date -- heretofore, all of the information from the voluntary system were estimates or samples which may or may not have been indicative of the entire day's trade. This

provision should prevent packers from picking and choosing what information they want to report. It will also provide information from a much broader temporal market upon which contract prices can be based with less fear of manipulation.

3. Captures all of the prices in the marketplace -- today's system has no place to include hogs prices after 2 p.m. and before 8 a.m. the next morning. This means that all hogs will figure into the day's market information.
4. Provides complete information regarding the base price, net price and carcass characteristics of contract-procured hogs. This information will be further broken down by three pricing systems:
  - a. Swine or pork market formulas
  - b. Other market formulas (this would include feed and futures markets)
  - c. Other purchase arrangements.

This feature should reduce suspicion regarding contractual arrangement and quantify the value of contractual commitments.

5. Establishes an accountability system subject to civil penalties -- if packers' reports for the daily 10 a.m. and 2 p.m. reports show a pattern of significant variance from the actual data reported on the following day, they can be punished with fines. This puts teeth into the law to make sure that everyone complies.
6. Requires reporting of base prices, net prices and carcass characteristics. The current base price system leaves the industry comparing apples to oranges. Including both base and net will give all industry participants a clear view of the actual dollars changing hands and the relative roles of base price and carcass premiums in this system. Including carcass characteristics will allow the industry to more accurately measure progress.
7. Requires packers to disclose purchase commitments for each of the next 14 calendar days. The aggregated number will help producers know how current the market is and how much opportunity exists in the spot market.
8. Reports weekly a list of "non-carcass" premiums categories (such as delivery timing, specified genetics, load size, etc) and the amount of these premiums during the previous week. Packers are also required to provide a plant-specific listing of such premiums to producers upon request. This provision allows producers to know what is available and decide for themselves whether it is profitable to qualify for and pursue these premiums. Note that packers are not required to make these premiums available upon demand since the need for the specific class of animal may be filled.
9. Requires all original contracts, agreements and other records to be kept for 2 years and requires that packers record the time period in which a purchase occurs -- before 10 a.m., 10 a.m. to 2 p.m. or after 2 p.m. -- on the date of purchase. This requirement provides a paper trail for enforcement efforts.

### Contract information

In addition to this information about the hog market, this bill also authorizes GIPSA to establish a much-needed system of gathering and publishing



information regarding the market for production contracts. The contract catalog that GIPSA will establish and maintain should provide valuable information regarding the types of contracts being offered at any given point in time and the number of hogs being procured by contract type. We believe both will go far in providing for an efficient market for contracts that will be open to all producers who choose to pursue it.

### Retail prices

The bill requires USDA to use data from a source that includes the sales quantities of retail meat items in order to compute correctly-weighted average retail prices. The current system of using Bureau of Labor Statistics retail prices doesn't allow this but recent advances and improvements in scanner-derived data should make the task manageable today and powerful in the future. It was NPPC that developed this idea and research the basic feasibility of acquiring commercial scanner data. The real benefit of this will be long run as researchers can gain a much clearer picture of the demand for meats and even specific cuts.

### Supply data

The bill requires that USDA separate market hog slaughter between barrows and gilts. This has been done in the beef industry for years; first because steers and heifers were priced differently but more recently as mainly a matter of tradition. This move will put in the public realm information that can be very useful in determining ongoing changes in the breeding herd thereby improving supply and price forecasting and potentially providing for a more stable hog market.

In addition, a monthly Hogs and Pigs inventory report is mandated. NPPC, NASS and other groups have worked on this for some time. The important thing is to simplify the survey in order to reduce the reporting burden, improve the response rate, save scarce USDA funds and, most importantly, get answers that producers actually know. We think this system will eventually be programmed in to records systems so that a response to the USDA questionnaire can be generated easily, quickly and accurately. This report will provide more frequent, more accurate and more useful information for producers, packers and market analysts.

### Studies

Finally, two important studies were authorized.

The first is a comprehensive look at the Secretary of Agriculture's jurisdiction, power, duties and authorities under the Packers and Stockyards Act of 1921. This study is already underway by the General Accounting Office. Amid all of the calls for broader powers, more help from the Justice Department, more resources for everyone, doesn't it make sense to first and foremost find out just

what the Secretary (and, by extension, the Grain Inspection, Packers and Stockyards Administration) can and can't do.

In addition, a study of trim losses in packing plants and the production, processing and inspection factors that affect it was mandated. Trim loss is often a major concern to producers and packers and a concerted effort to reduce it will likely have positive food safety impacts as well. The law further requires AMS to update the baseline study every two years and to ascertain the improvements that have been achieved at the time of each update.

### **What will this law not do?**

Some people have excessive expectations regarding what will be required and made available by this law. Among these are the following:

1. Provide prices of packer-raised hogs. This law excludes these transfer prices simply because they are irrelevant. Transfer prices make no difference in the overall profitability of a vertically integrated system and therefore could be reported as anything without financial harm to the reporting firm. So, if included, these could easily be used to affect the prices paid by non-integrated packers, perhaps to the detriment of producers.
2. Provide plant by plant information. Again, this kind of information would likely be more useful to packers than to producers and could be used in a predatory manner when supplies of hogs are short. Producers will still be responsible for finding out what given companies and plants are bidding for hogs on a daily basis. The aggregated information will, however, provide a useful frame of reference.
3. Provide the terms of all contracts. Producers will still be responsible for investigating contract opportunities and comparing contract terms. Publishing the contracts themselves was deemed to likely reduce innovation and competition. NPPC's soon-to-be-published Guide to Marketing Contracts is intended to help producers make meaningful comparisons.
4. Improve hog prices above the levels that supply and demand cause them to be. This is an information bill that will not change the basic laws of economics. The bill will hopefully provide better information for all participants to understand and anticipate the results of these economic relationships.

### **Other information is needed?**

Though not contained explicitly in this bill, pork producers believe it is within the scope of USDA's responsibilities to:

1. Gather data from which accurate estimates of the distribution of prices (which is almost certainly not the classic "normal" distribution) can be derived in order to accurately portray to producers the ranges that contain, for instance, 50 percent or 70 percent of the hogs traded on a given day.

The only data needed to accomplish this is the number of hogs each packer purchases at each price on, for example, 50-cent intervals. We do not feel that this would be burdensome on packers since most computer systems will compute these breakdowns (simply histograms) quickly and easily. It would add great value and detail to the current system of reporting the low price, high price and weighted average.

2. Study the differences that currently exist in prices across load sizes and, possibly, establish an industry standard load size for price reporting. USDA currently distinguishes between truckload and less-than-truckload prices for meat items but lumps prices from all load sizes of livestock together. This practice is born of tradition but may not be optimal for the modern, changing pork industry.

## **Summary**

NPPC opposed mandatory price reporting for many years. It was only in the aftermath of the price crisis of 1998, continued refusal of some packers to report to USDA and almost complete rejection of an internet-based price reporting system developed by NPPC and Farmland Foods in 1998 and 1999 that pork producers voted to support this concept. We worked hard to craft a system that achieved our goals while still being respectful of the individuality and competitive position of packers. Whether we have accomplished those goals remains to be seen but we are confident that this system will provide information never before available that has the potential to make a more efficient industry characterized by greater trust and teamwork.



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**Challenges Facing the Oilseeds and  
Grains Industries 2000 and Beyond**

**Global Market-Access**

**Agricultural Outlook Forum 2000**

**February 25, 2000**

**Al Ambrose - VP Cenex Harvest States  
NOPA Chairman**

**Global Market-Access**

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- **Global soybeans - production & crushing**
- **Foreign-currency Issues**
- **Japan as key to Asia**
- **A look at China**
- **Russia vs. U.S. Meat Exports**
- **The outlook for soybeans**
- **Current strategies**

## **A few important facts:**

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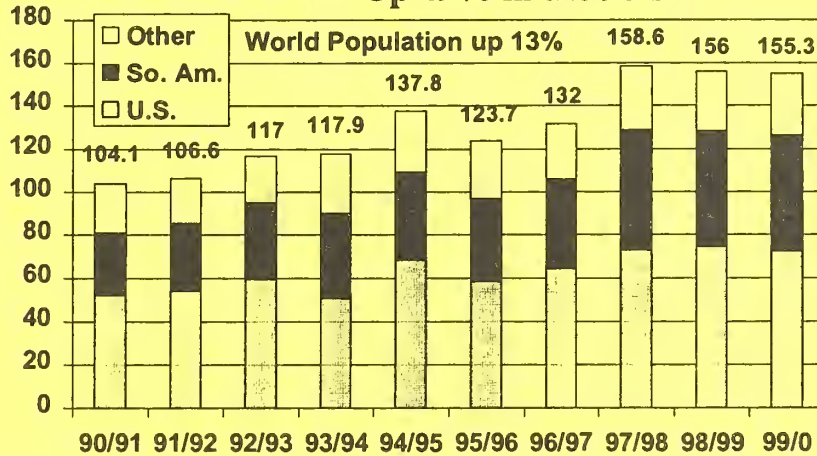
- 95.4% of world population non-U.S.
- U.S. essentially a “fully-fed” society
- U.S. only uses 50-60% of bean crop
- Over 95% world soybeans processed
- Absent crushers, you’ve no market...
- Without beans, we’ve no function...
- Global industrial tariffs average - 4%
- Global agricultural tariffs avg. - 40%

## **Global Soybeans**

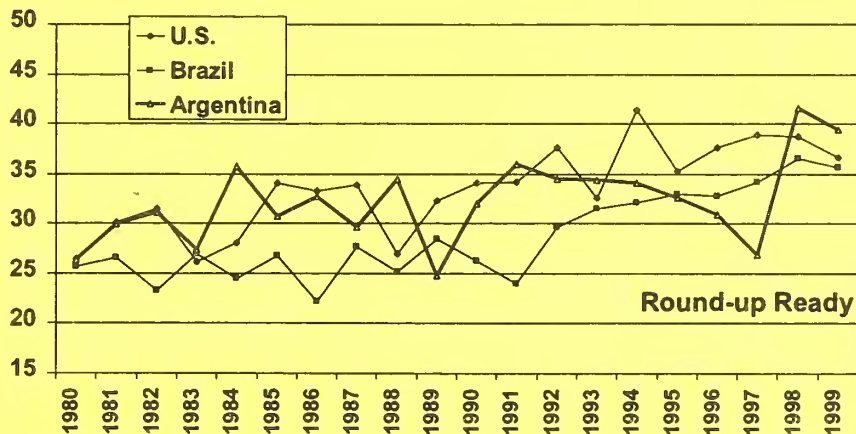
### **Production and Crushing**

## World Soybean Production

Million Metric Tonnes \*\* Up 49% in the 90's \*\*



## Soybean Yields (avg. bpa) US, Brazil & Argentina





## Soybeans Weekly Prices

Cenex Harvest States

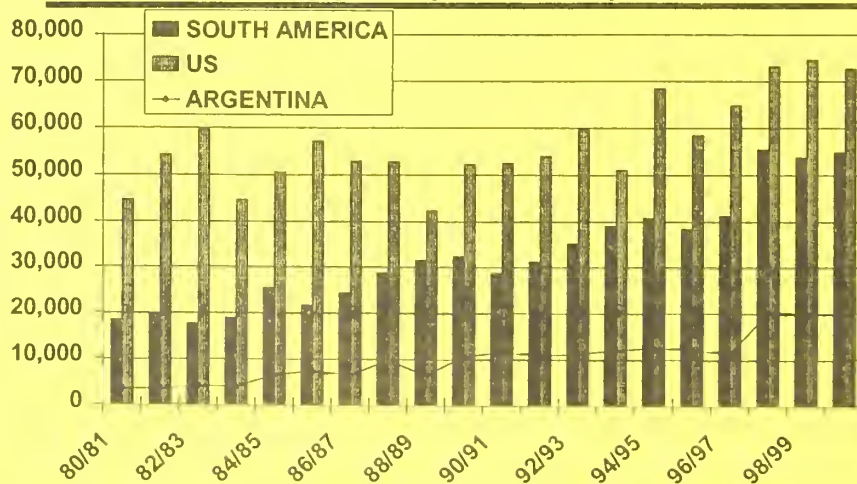
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## Soybean Production The Americas (000 mt)

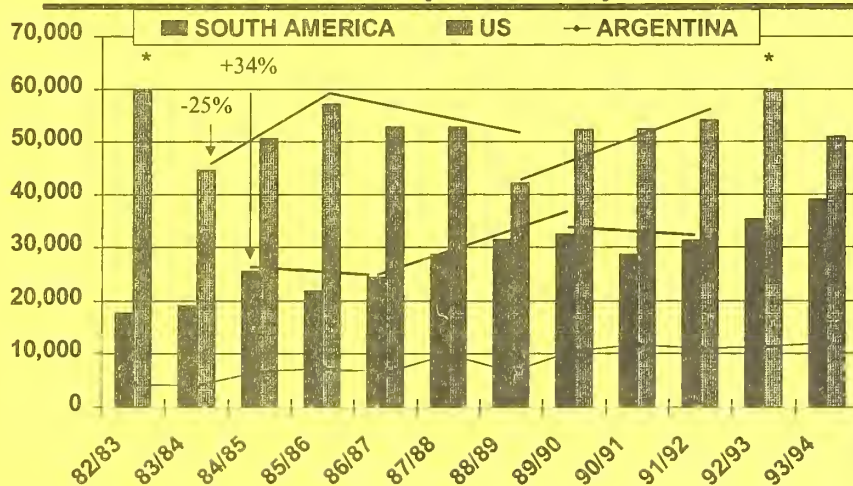
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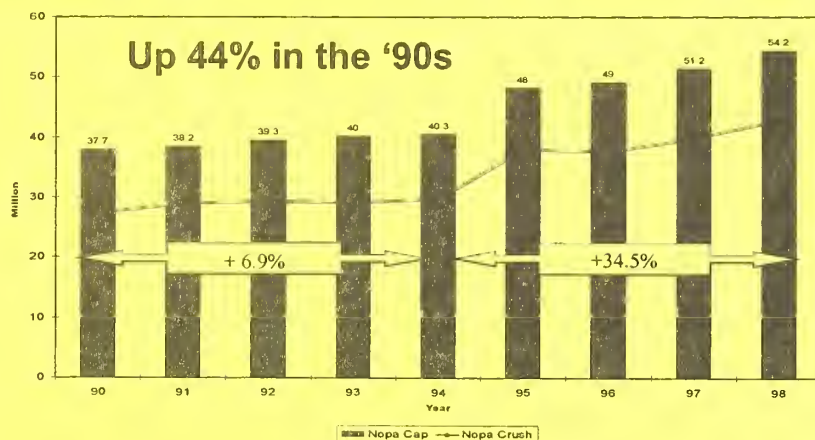
## Soybean Production The Americas (000 mt)

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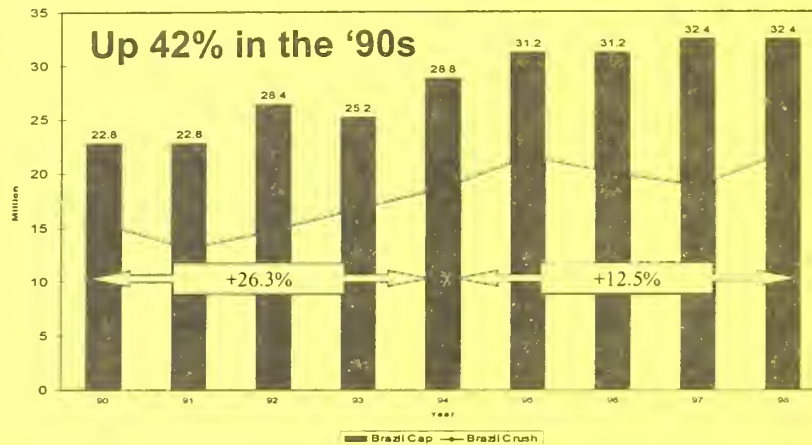


## US Crush vs. Capacity

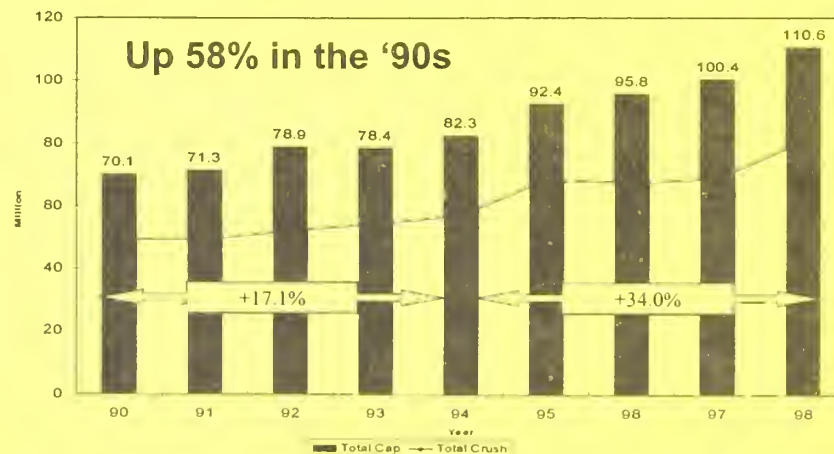
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## Brazil Crush vs. Capacity

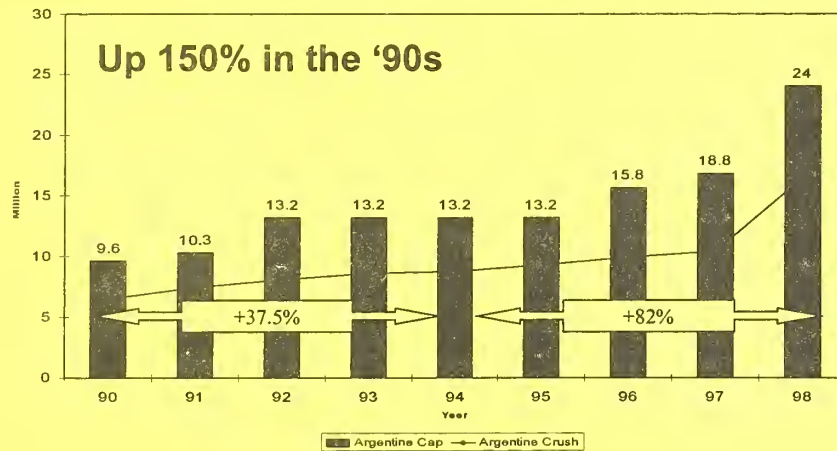


## Combined America's Crush vs. Capacity



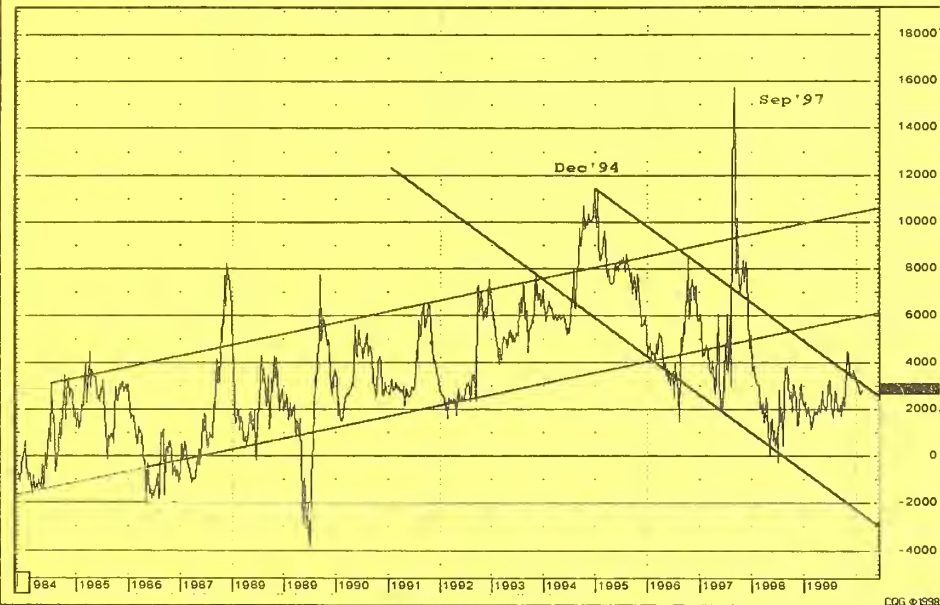


## Argentine Crush vs. Capacity



## Crush Weekly - 15 years Cenex Harvest States

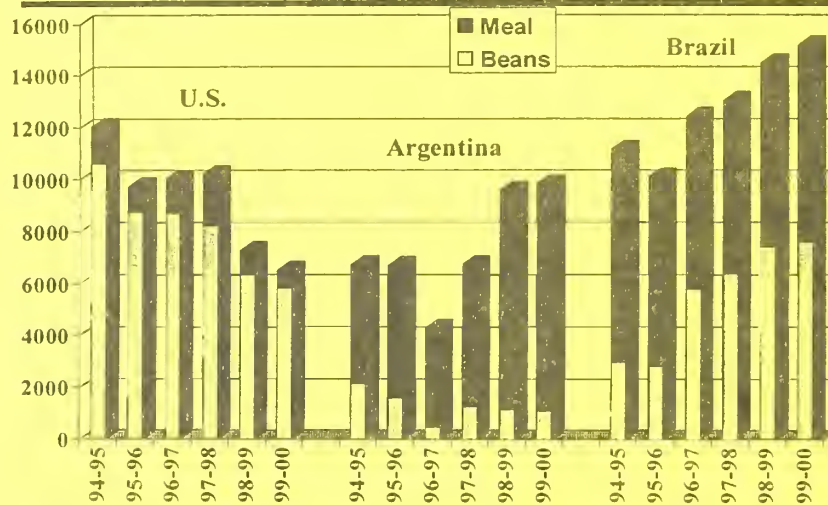
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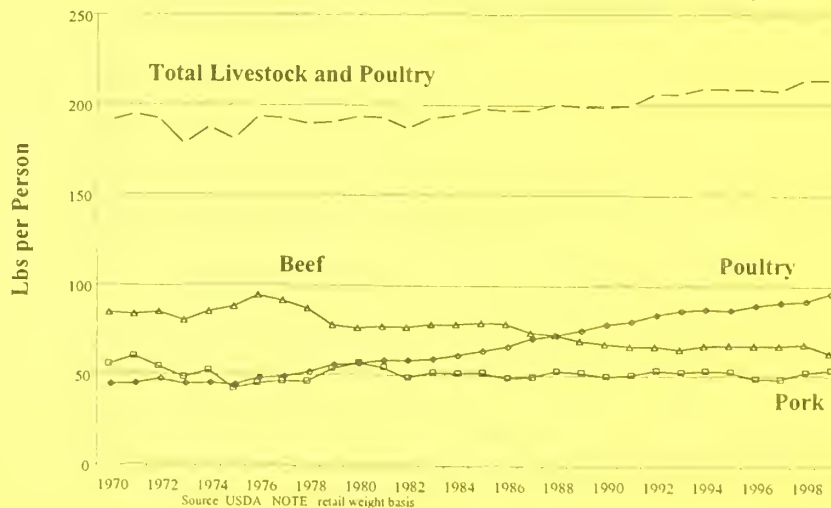
## EU Imports of Soybeans and Meal By Country of Origin (000 mt)



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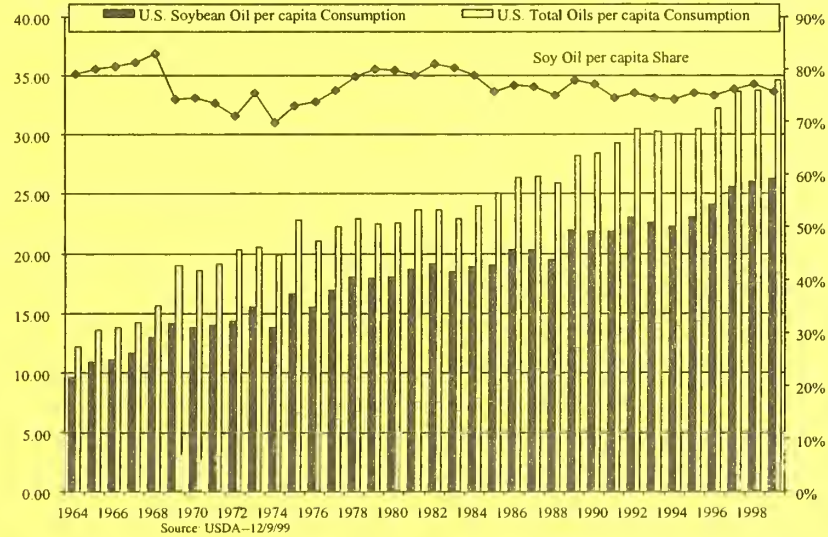
## U.S. Meat Consumption Per Capita



## Cenex Harvest States

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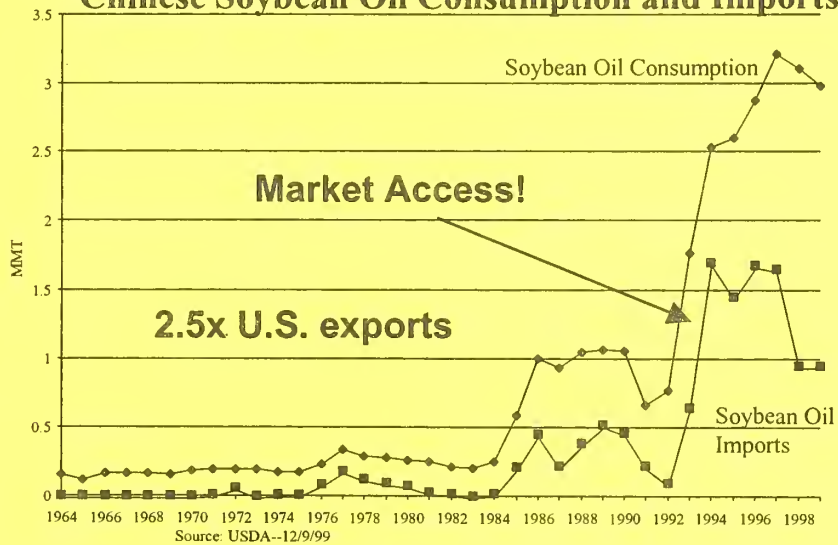
### U.S. Per Capita Consumption of Oils and Soybean Market Share



## Cenex Harvest States

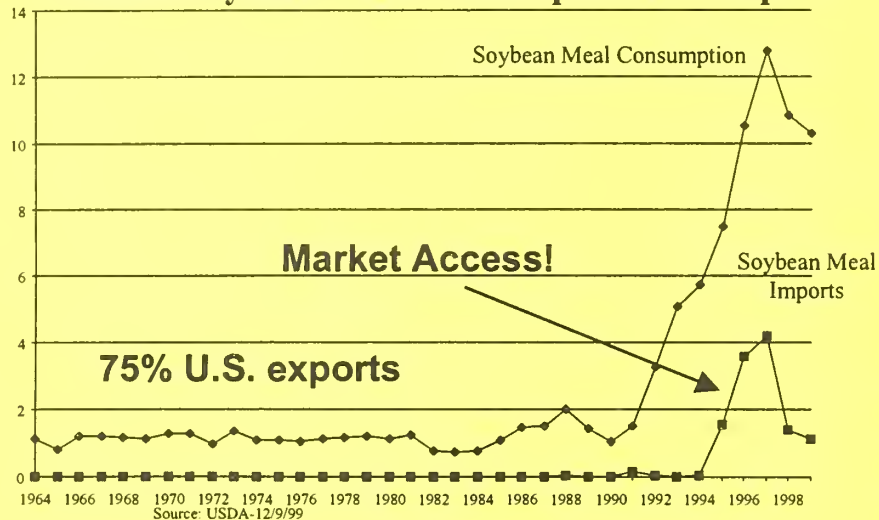
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### Chinese Soybean Oil Consumption and Imports



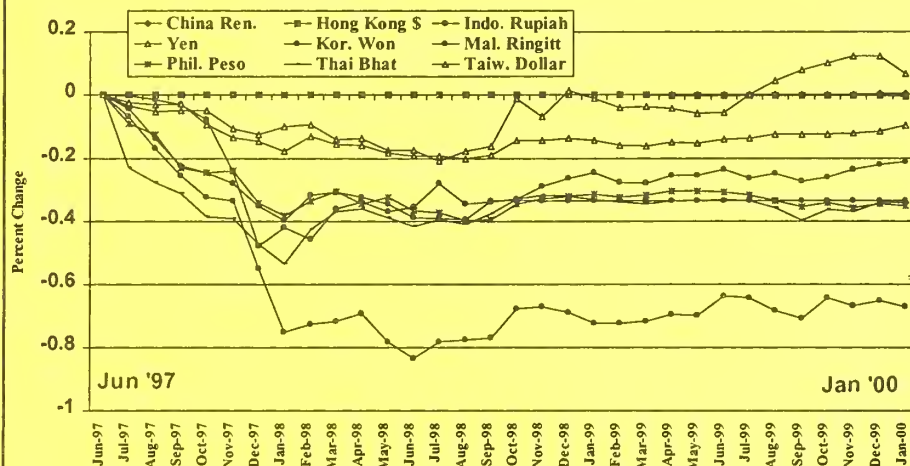


## Chinese Soybean Meal Consumption and Imports



## Foreign-currency Issues

## Cenex Harvest States Changes Since June '97 in Value of *we grow value* Asian Currencies (vs. U.S. \$)



## Cenex Harvest States Purchasing Power of Various *we grow value* Currencies

Country	Rank	Population (millions)	%	Currency	% vs. \$ past 24-30 months
China	1	1,200	20	Renminbi	--0-- (peg)
India	2	985	16	Rupee	-25% (4 yrs)
U.S.	3	270	4.5	Dollar	--0--
Indonesia	4	213	3.5	Rupiah	-66%
Brazil	5	170	2.8	Real	-39%
Russia *	6	147	2.5	Ruble	?????
Japan	8	126	2.0	Yen	+04%
Mexico	11	99	1.7	Peso	+11%
Philippines	13	78	1.3	Peso	-36%
Thailand	18	60	1.0	Bhat	-35%
S. Korea	26	26	0.8	Won	-21%
Taiwan	45	22	0.4	Dollar	-09%
Malaysia	48	21	0.4	Ringgit	-33%

\* During Gorbachev era 28,780 rubles(@ 8/US\$) was \$3,598; now is \$1.00

## Costly Mistakes

Bad loan levels and resolution costs  
of some recent banking crises

	Cost as % of GDP	Non-Perform- ing Loans*
S. Korea	60%	50%
Indonesia	50%	75%
Thailand	45%	55%
Malaysia	45%	35%
Chile (1981-85)	41%	16%
Mexico (1994-95)	15%	11%
Brazil (1994-96)	10%	9%
U.S. (1984-91)	7%	4%
Sweden (1991-93)	4%	11%
Japan (1990s)	3%	16%

\* As % of total loans, estimated peak during crisis

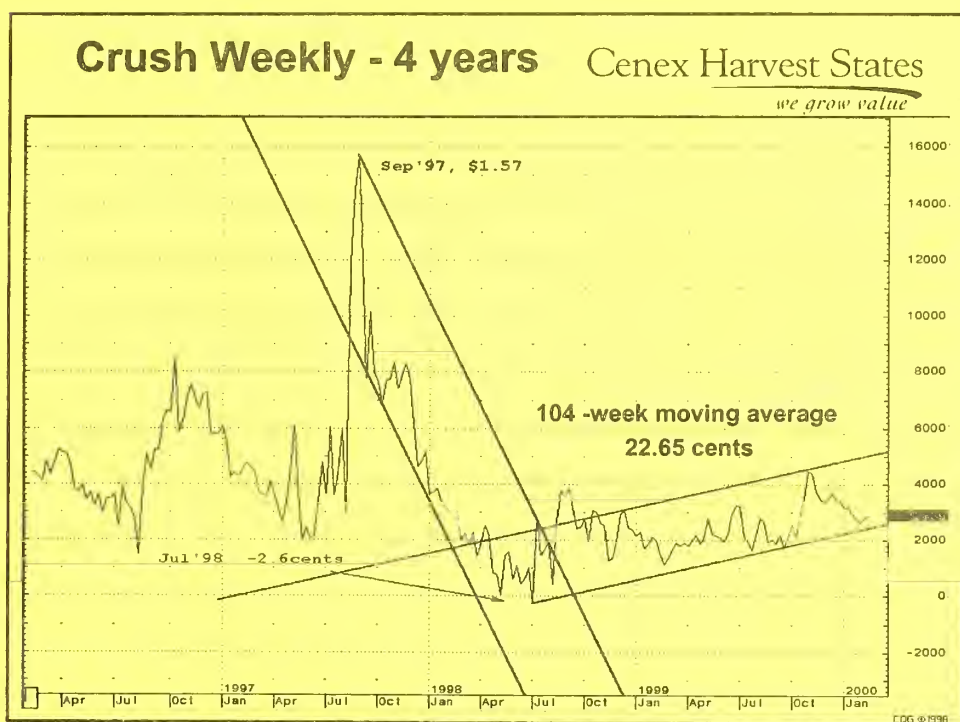
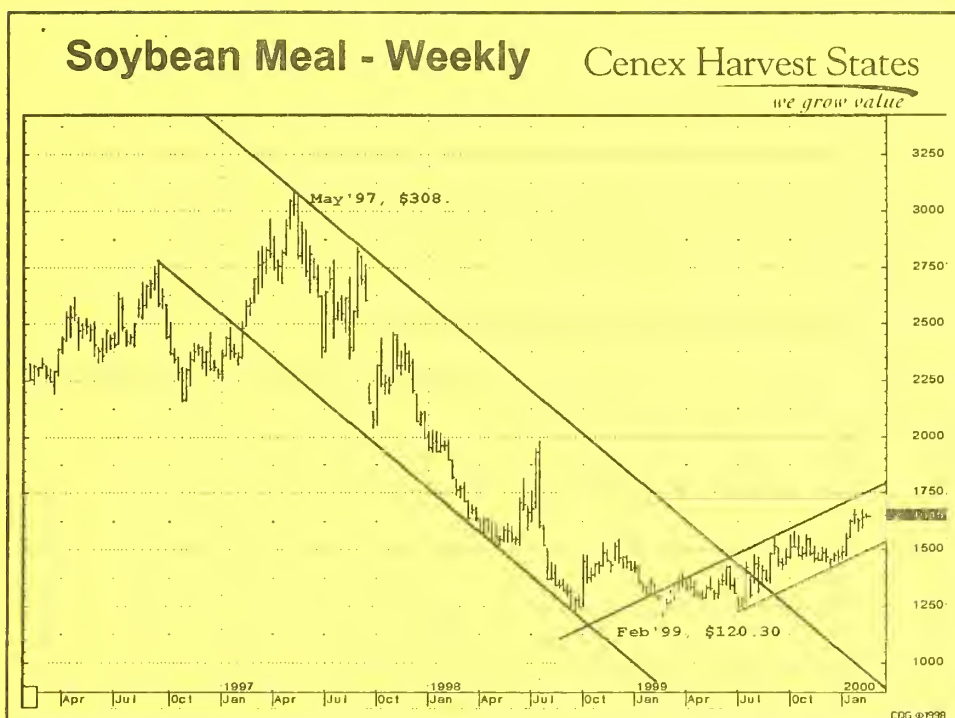
## Lean Hogs - Weekly

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## Soybeans - Weekly

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## Japan as Key to Asia



## Nikkei Business Weekly - April '99

### More Japanese operations in China shift from entry fervor to exit strategy

#### CONSULTANTS ADAPT TO CHANGING DEMANDS

BY DAH HOTOPOY FURUKAWA  
Staff writer

Toyo Steel Corp. is in a long line of Japanese companies heading for the exits in China.

In 1993, the company joined with the local government of Shenyang, the capital of Liaoning Province, and launched an electric furnace project in the city. But operations were suspended for more than a year shortly after production began in 1997, as the Chinese partner failed to make agreed capital contributions amid sharp declines in local steel prices.

Toyo remained patient despite continuous failures by its partner to meet obligations. But the company finally gave up and is negotiating to break the joint-venture contract. With business

slumping at home, it could no longer cope with the losses in China. Overall, Toyo recorded a ¥2.4 billion (\$19.8 million) consolidated loss in its fiscal year that ended last September.

Toyo's case is just the tip of iceberg, many observers note. Although comprehensive figures on withdrawal from China are not available, Japanese banks, consultants and legal firms report that advisory businesses for closing operations in China have been booming since 1998. The consulting groups are shifting the focus of their China-related business from investment advice to disengagement strategies.

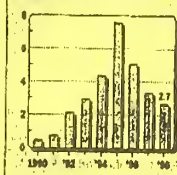
The current trend is caused by sluggish business environments in both China and Japan. Japanese companies can no longer support loss making operations in China, once portrayed as their most promising market. Banks and consultants expect withdrawals from China to substantially increase this year, especially because Japanese companies this

fiscal year are required to start using consolidated accounting.

"Japanese companies' China strategy has turned around so much that companies are reorganizing their operations. It's the opposite of the investment boom continued until 1997," said King Keiho, senior manager of investment banking for Industrial Bank of Japan. "The shift in direction was brought on by a structural change in the Chinese market, which cut the profitability of manufacturers' Chinese operations."

The boom in investment in China began sweeping Japanese companies in the early 1990s, then continued through the mid-1990s as China geared up its openness policy and investors aimed at the vast potential market. But now, China faces shrinking consumption as unemployment rises because of reforms of state-owned enterprises and as excessive investment has brought an oversupply of products. Also, the currency crisis in Southeast Asia has low-

**Past its peak**  
Japanese investment in China,  
in billions of dollars on contract basis



Source: Japan-China Investment Promotion Organization

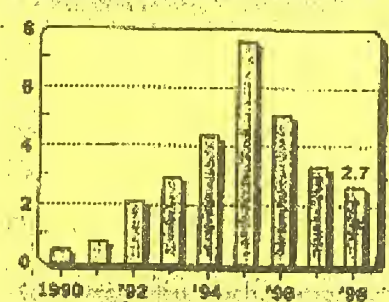
ered the export competitiveness of goods made in China.

At Industrial Bank of Japan, the demand for advice on closing and downsizing Chinese operations began to accelerate in the last half of 1998. Of its advisory contracts during the year, withdrawal consulting accounted for 20%, after being marginal in 1997. Because more than 10 companies have asked for advice on closing China opera-

See CHINA on Page 19

## Nikkei Business Weekly - April '99

**Past its peak**  
Japanese investment in China,  
in billions of dollars on contract basis

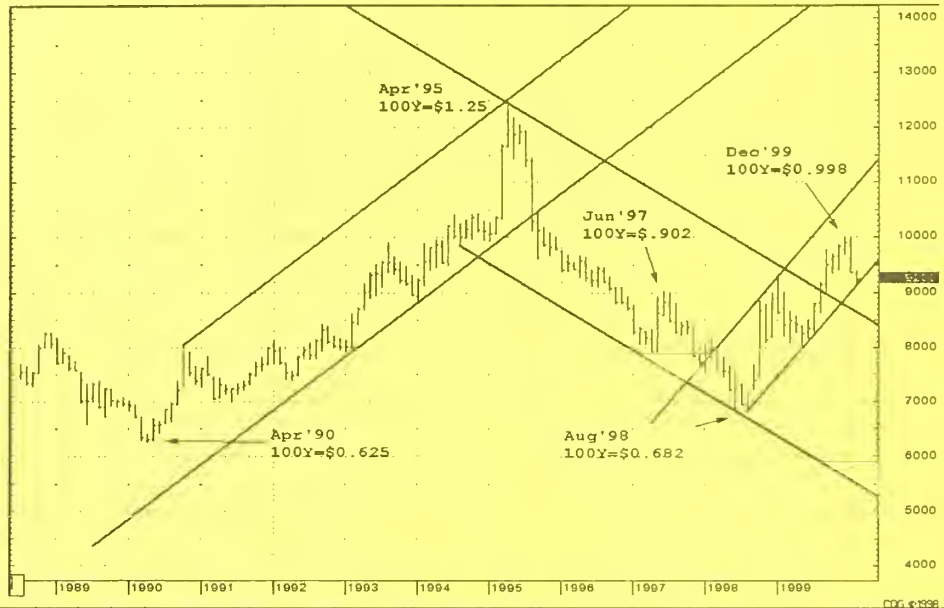


Source: Japan-China Investment Promotion Organization



## Japanese Yen - Monthly Cenex Harvest States

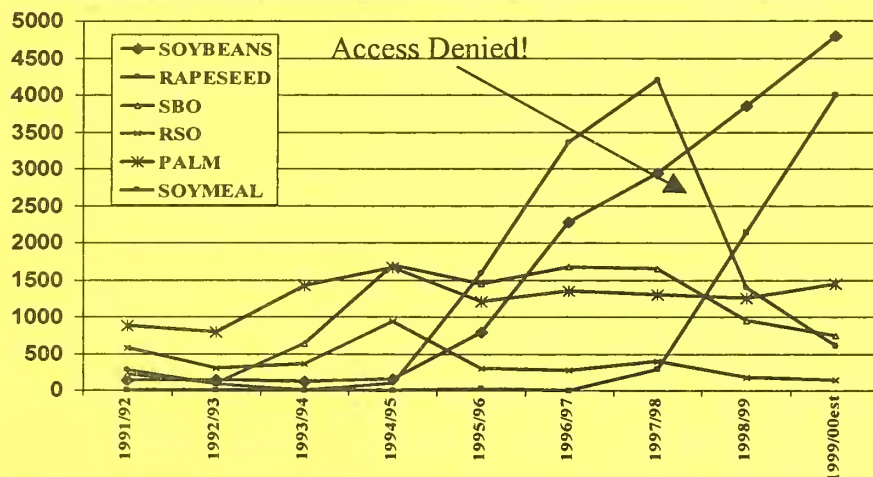
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## Chinese GDP growth

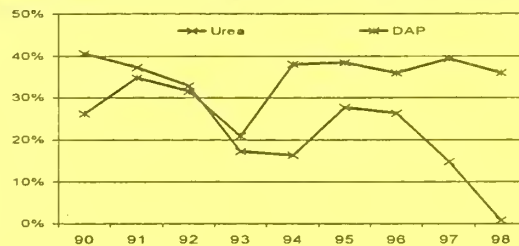
• 1992/93	13.0%	54%
• 1993/94	12.6%	
• 1994/95	10.5%	
• 1995/96	9.6%	
• 1996/97	8.8%	34%
• 1997/98	7.8%	
• 1998/99	7.1%	
• 1999/00	7.0%	
• Source: Oil World		

## Chinese Imports of Oilseeds, Oil & Meal - 000 tonnes



## China's Share of World Urea & DAP Imports

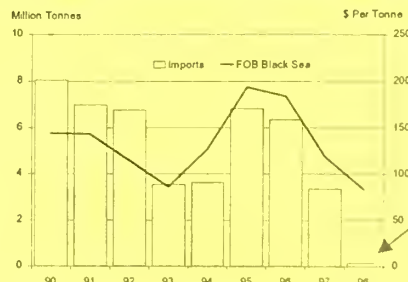
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China has historically been the world's largest importer of both urea and DAP fertilizers, accounting for as much as 40% of total world trade.

## China Urea Imports vs. World Urea Price

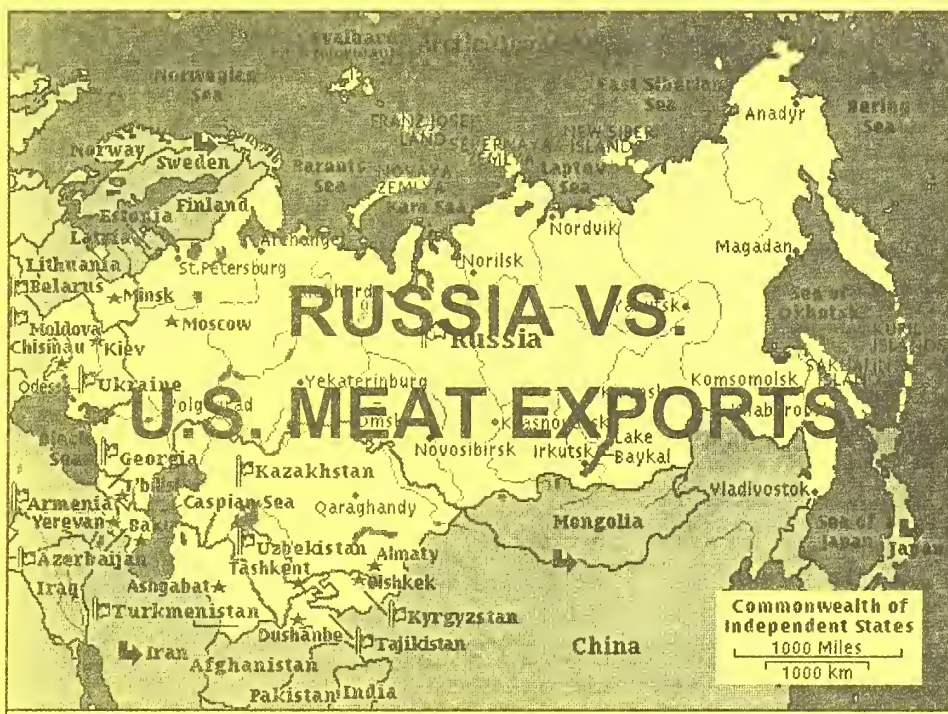
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**Access Denied!**

Since the Chinese government imposed a ban on urea imports in mid-1997, China's imports have dropped to virtually nothing, and world urea prices have collapsed to their lowest level in over a decade.



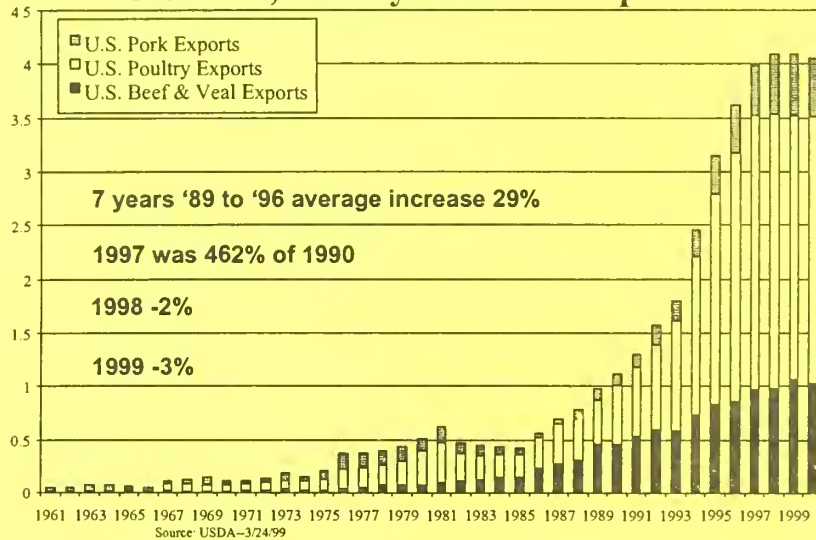


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## Notes on Russia

- GDP -5%, 1998: -5%, 1999 (proj.)
- US ag exports to Russia down 80%
- Approx. 50% US poultry export went to Russia prior to crisis
- Since Aug.'98 - US poultry to Russia down 75-80% \*\*\* no major rebound anticipated in near future.....
- Source: USDA ERS Study on Russia

### U.S. Beef, Poultry and Pork Exports



### Selected equity prices:

- Tyson      \$15 ('94)    \$25('98)    \$10.75 (Feb'00)
- ConAgra    \$15('95)    \$38('97)    \$17.94 (Feb'00)
- Sand. Fms. \$11('95)    \$19('97)    \$7.44 (Feb'00)
- ADM        \$13.5('95)    \$22('97)    \$10.88 (Feb'00)

## Soybean Outlook

## U.S. Soybean Supply/Demand

Million bushels

					USDA Proj.	CHS Proj.
	<u>95/96</u>	<u>96/97</u>	<u>97/98</u>	<u>98/99</u>	<u>99/00</u>	<u>00/01*</u>
Beginning Supply	2,514	2,573	2,826	2,944	2,994	3,193
Crush	1,363	1,436	1,597	1,590	1,600	1,640
Exports	855	882	900	801	890	925#
Total Usage	2,325	2,441	2,626	2,596	2,649	2,725
Carryout	183	132	200	348	345	448
Average Farm Price	\$6.72	\$7.35	\$6.47	\$4.93	\$4.50-5.00	\$4.25-5.00

\*(Assumes: 74 mln pltd, 72.5mln hvst (.98), 39BPA, 2,828 bln. prod.)  
(# Record Exports - 929 mln bu - 81/82 crop year)



**Wrapping it up.....**

**What Do We Do Now?**

## **Immediate Imperatives:**

---

- **Steadfastly oppose:**
  - unilateral trade sanctions on food
  - protectionism (in all forms)
  - trade barriers
  - border wars
  - tariffs
  - supply controls
  - set-asides
  - government-inspired reserves

## **Intermediate/Longer-Term Objectives**

---

- **Promote global market access**
  - Advocate sanctions reform (i.e. global food treaty in exchange for market access)
  - Support (improved) IMF funding - stabilize/revive faltering, developing economies
  - Promote permanent normalized trade relations (PNTR) with China
  - Pass fast-track legislation(trade-negotiating authority - TNA)
  - Work with U.S. trade representatives to promote swift, but proper Chinese accession to W.T.O.

## **Why Unilateral Sanctions Don't Work:**

---

- Food flows like water(rain on a hill...)
- Other nations will subvert...
- Delay our potential to become inter-dependent (no nation will make itself even partially dependent upon us if it believes that we might withhold food)
- Threats only escalate the tensions...
- If you would seek to alter a mans' (or nations') behavior, feed his children

## **Unintended Consequences:**

- Strengthen the tyrant(creates dependency)...
- Alienate the citizenry(projects the "Ugly American" image)...
- Destroy U.S. farmers opportunities...
- Make food more expensive for the worlds' impoverished and hungry...
- Trample upon established business ties and lines of communication...
- Magnify and ossify our differences...
- Make the world less safe...

## **Producer Marketing Suggestions**

- Develop price and/or profit objectives...
- Develop marketing plans to transfer risk and execute...
- Think and market like a commercial entity...
- If you've already taken the LDP:
  - sell calls or buy puts against stocks or future production
- Seek out competent marketing assistance...
- Reminder: farmers are intrinsic longs...



**The Challenge:**  
**Global Market-Access**

**Questions?**

**February 27, 2000**

**Al Ambrose - VP Cenex Harvest States  
NOPA Chairman**

## **Maryland's Regulatory Approach to Nutrient Management**

Thomas W. Simpson, PhD  
Coordinator, Chesapeake Bay Agricultural Programs  
University of Maryland and Maryland Department of Agriculture

The Maryland General Assembly passed the Water Quality Improvement Act (WQIA) during the closing hours of the 1998 session. The WQIA has been described as the most comprehensive farm nutrient control legislation in the country. What is it? Why was it passed? What does it do and what doesn't it do? How should farmers and others who will be regulated under the Act be involved and prepared to operate successfully under the WQIA?

### **History of the Water Quality Improvement Act**

On September 15, 1997, Governor Parris N. Glendening appointed the Citizens' Pfiesteria Action Commission, chaired by former Governor Harry Hughes, to study events surrounding the Pfiesteria outbreaks on the Lower Eastern Shore and to recommend policy actions to the Governor.

The Commission issued its report on November 3, 1997, that subsequently formed the basis for the Governor's legislative package. A key finding was a probable link between Pfiesteria populations (not toxicity) and nutrient overenrichment. This consensus, developed by an independent group of marine scientists, was adopted by the Commission and guided its recommendations. At the same time, a group of agricultural scientists concluded that dissolved phosphorus in runoff can be high, even without erosion, on soils with excessive soil test phosphorus levels. This finding caused the Commission to place a higher emphasis on phosphorus in nutrient management planning.

On January 21, 1998, the Governor introduced the Water Quality Improvement Act of 1998 in the Senate, largely following the recommendations of the Citizens' Pfiesteria Action Commission. The bill contained many requirements, new programs, and associated budget initiatives. The most controversial included mandatory nitrogen- and phosphorus-based nutrient management plans to be developed by 2000 and implemented by 2002.

Although consistent with the recommendations of the Citizens' Pfiesteria Action Commission, this bill was a clear and major departure from the State's long-term emphasis on voluntary agricultural nutrient pollution control programs, which were the cornerstone of Maryland's Chesapeake Bay Tributary Strategies. The bill created a great deal of controversy among farmers, poultry processors, environmental groups, Tributary Teams, and many others.

A group of rural legislators introduced a counter measure in the House near the end of January 1998; the Nutrient Management Improvement Act of 1998. This bill maintained a voluntary nutrient management approach with incremental goals, resulting in 80 percent of all farmland

under nutrient management by 2005. It was amended in committee to require all farms to have nitrogen-based plans by 2003 and nitrogen- and phosphorus-based plans by 2006. The bill was passed by the House in early March 1998.

The Governor's bill was amended to require nitrogen-based plans by 2002 and nitrogen- and phosphorus-based plans by 2004. This bill was passed by the Senate in early March 1998.

The bills were sent to a conference committee. Since both bills required mandatory nitrogen- and phosphorus-based nutrient management, debate during conference focused heavily on compromise implementation dates. On April 13, 1998, the last day of the Session, the House approved the Act unanimously and the Senate voted 39 to 7 in favor of the Act. The Governor signed the Act on May 12, 1998.

The Maryland Department of Agriculture (MDA) was given authority for regulation development under the Act. The Department expanded an existing Nutrient Management Advisory Committee and began the task of regulation development during the summer of 1998. Development of draft regulations was completed during 1999 and public hearings and comment are being conducted during the winter of 2000. The discussion that follows is based on the WQIA and the final draft of the regulations published in the Maryland Register on January 28, 2000 (27:2:160-174). A bill making technical modification and limited changes to the Act was introduced, with Department support, in February 2000.

### **Requirements of The Water Quality Improvement Act**

The most far-reaching requirement of the WQIA is that all agricultural operations with gross annual incomes greater than \$2,500, or more than eight animal units, must have and implement a nitrogen- and phosphorus-based nutrient management plan. The Act requires that anyone "who, in operating a farm, uses chemical fertilizer" have a nitrogen- and phosphorus-based plan by December 31, 2001, which must be implemented by December 31, 2002. Persons using sludge or animal manure must have and implement nitrogen-based plans by the same dates as those using commercial fertilizers. Those using organic sources have until July 1, 2004, to submit a nitrogen- and phosphorus-based nutrient management plan, which must be implemented by July 1, 2005. The proposed regulations allow farms that predominantly use commercial fertilizer, but use organic sources on 10 acres or more, to wait until the later date to address phosphorus.

Some animal operations producing manure will need alternative uses for part or all of it. Alternative use technologies, distribution systems, and methods to reduce available phosphorus in organic waste must be refined and implemented. State strategies, programs, and cost-share programs to encourage this are available but the amount of excess manure that cannot be land applied is still not clear.

The later date for organic waste reflects concerns over the time needed to refine and implement these solutions. Because of the ability to blend balanced commercial fertilizers, time was not considered to be as much of an issue for commercial fertilizer users.

### **Affected operations**

As stated above, anyone who grosses more than 2500 per year from an agricultural operation



must obtain and implement a nutrient management plan. This includes nurseries, greenhouses, Christmas trees farms, cut flowers and fresh vegetables, as well as agronomic crops and animal agriculture. The low annual gross and broad definition of an "agricultural operation" means that essentially all agricultural activities are subject to the requirements of the law.

### **Obtaining a nutrient management plan**

Plans must be developed by a nutrient management consultant certified by the MDA. Certified consultants are located in every Maryland Cooperative Extension (MCE) county office and private sector consultants are available through independent crop consulting firms and farm supply/fertilizer companies. Funds have been provided to hire additional nutrient management consultants through MCE.

Cost-share is available for farmers who wish to hire private nutrient management consultants to develop their plans. However, implementation is required when the cost-shared plan is written, not by the deadline of December 31, 2002.

### **Submission and Evaluation of Plans**

All nutrient management plans and plan revisions must be filed with MDA. Copies will be maintained for 3 years. The plans are considered part of a farmer's business records and are therefore provided confidentiality. MDA will conduct on-farm evaluations of the implementation of the nutrient management plan. Maryland Department of Environment (MDE) was not given a direct role in the Act, but will be called in when there is evidence of a water quality violation, or after the third citation of a WQIA provision.

When a nutrient management plan is submitted, it must include a "grant of a right of entry" to MDA to evaluate implementation. Evaluations must be prearranged, done during daylight hours, and the farmer must be given the opportunity to be present. The Act also requires that evaluations be done in a manner that minimizes inconvenience to the farmer.

MDA will notify individuals who do not submit plans by the applicable date. If, "after a reasonable period of time" following notification, no plan is submitted, the individual can be fined up to \$250. This fine is in addition to any fines associated with failure to implement a plan.

If someone does not implement their plan, they will initially be given a warning that they are violating the Act. If they still do not implement the plan, they will be offered an opportunity for an administrative hearing after which they can be fined up to \$100 per violation, not to exceed \$2,000 per year. Each day is considered a separate violation.

In addition to the fines, MDA may require repayment of cost-share funds for projects that are in violation and may deny or restrict eligibility for future cost-share.

### **Phosphorus-based nutrient management plans**

The Act specifies that nutrient management plans consider both nitrogen and phosphorus application rates. Recommendations have always been made for both nutrients, however, when animal manures or sludge were used, the recommended application rate was based on crop nitrogen needs. This practice resulted in substantial over-application of phosphorus.

The Act identifies what must be considered in a plan, but does not specify what constitutes a phosphorus-based plan. Agricultural scientists support an approach that considers the many site-specific factors influence the potential for phosphorus loss. These scientists have proposed the use of a "Phosphorus Site Index" which is incorporated by reference into proposed regulations. A generalized national index was developed and has been adapted for use in Maryland. It evaluates slope, runoff potential, proximity to surface water, soil phosphorus levels, watershed priority and fertilizer/manure application rates, timing, and methods. The scientific community feels that site-specific assessments using this tool provide the most comprehensive evaluation of potential environmental impacts without restricting phosphorus application to low risk sites.

The proposed regulations require that all fields with soil test "fertility index values" (FIV) greater than 150 have a Phosphorus Site Index calculated to guide management decisions. The Maryland FIV is a unitless system where 50 is optimal and 100 begins to be excessive. It is in the farmers best interest to check their site index and manage to prevent reaching an FIV of 150.

The Phosphorus Site Index rates the potential risk for phosphorus loss from low to very high. At low risk levels, a nitrogen based plan can be used but care is suggested to avoid building phosphorus levels. A medium rating means that phosphorus application should be limited to phosphorus soil test recommendations or crop removal, whichever is greater. At a high risk level, only recommended soil test phosphorus levels may be applied (usually starter phosphorus only). At very high levels, no additional phosphorus can be applied. For high or very high levels, all practical management practices for reducing phosphorus losses must be implemented.

### **WQIA Nutrient Management Plan Content**

Maryland has had a strong, voluntary nutrient management program since the 1980's. These plans focused largely on nutrient application for crop production. Plans required by the WQIA continue this emphasis but also require consideration of land and manure management. This, in combination with detailed record keeping requirements, has been used by the state to argue that WQIA plans will be "functionally equivalent" to federal Comprehensive Nutrient Management Plans (CNMP).

The regulations require the plan to address "all aspects of the agricultural operation, including tillage, cropping, pasture, and production of agricultural products, such as plants, trees, sod, food, feed, and fiber." It also requires plans for the identification, management and disposal of "all primary nutrients produced on, imported to, and exported from" the agricultural operation. There must be manure management conditions that protect water quality and improve manure utilization. This includes handling, storage, and management for manures produced on-farm for direct use or export as well as any manures brought onto the farm. Nutrient application rates cannot exceed plan recommendations. All other recommendations in the plan must also be followed. Plans must also include BMPs and/or a phased-in approach to get nutrient levels to optimal ranges. Changes in crops, animal number, etc., that cause significant changes in nutrient amounts or use require submission of a revised plan. Detailed plan content and criteria are provided in the proposed regulations.

### **Reporting and Record Keeping**

As discussed above, a detailed summary of the plan developed by a certified consultant must be



submitted to MDA. The Department will conduct random spot checks to determine compliance. There are significant record keeping requirements for farmers to document compliance. These include the full nutrient management plan, soil and manure analysis, and field or management unit yield information. Information must be maintained on manure management, animal numbers, and manure quantity. They must also keep receipts for all nutrient purchases. Records must be kept on a field or management unit basis for the timing rate, quantity, types, and analysis of nutrient use. They must also document any changes to implementation of their nutrient management plan.

### **Requirements for nonagricultural nutrient use**

Anyone who applies nutrients to property of 3 or more acres for nonagricultural purposes (lawns, gardens, beds, etc.) or to any State property must do so in a manner consistent with the recommendations of Maryland Cooperative Extension. Pending legislation would remove the three acre minimum parcel size, thus regulating all "for hire" nonagricultural nutrient application. Fines for violation of this requirement are up to \$1,000 for the first violation, and \$2,000 for subsequent violations, up to \$10,000 per year for violations associated with "the same facts and circumstances." Each day is a separate violation. MDA is responsible for determining compliance with these requirements.

### **Programs to help implement WQIA**

***Pilot poultry litter transport program.*** This program is a joint project between the State and poultry processors. It provides cost-share, up to \$20 per ton, to offset the cost of transportation and handling of poultry litter from farms with excess. Poultry farms anywhere in the State are eligible for the program, but the goal is to remove 20 percent of the poultry litter produced by Maryland's four Lower Eastern Shore counties. Litter must be transported for use on land "having the capacity to hold additional phosphorus." Cost-share can also be obtained for transport to sites for other environmentally acceptable uses, such as composting. The State and poultry processors will provide up to \$750,000 for this project.

***Poultry Litter Matching Service.*** MDA has established a service linking farmers with excess litter with nearby farmers who can use litter as a nutrient source. This service will build on the existing Delmarva Poultry Industry Program and support the pilot transport program.

***Animal Waste Technology Fund.*** This fund was established in the Department of Business and Economic Development to provide support for research and development of technologies to reduce nutrient content of animal waste, alter the composition of animal waste, or develop alternative animal waste utilization processes. The fund can provide grants, loans, loan guarantees, or equity investments.

Eligible projects must have strong potential to improve public health and the environment, preserve the viability of agriculture, and have a positive economic impact in the State. Funding will be competitive based on the above considerations. One million dollars has been appropriated annually to this fund.

***Tax Credit for Additional Fertilizer Costs.*** Some individuals will have to reduce or eliminate their use of animal manures as a fertilizer source to comply with their nutrient management plan



and will have to purchase additional fertilizer, particularly nitrogen.

The Act allows for a State tax credit equal to 50 percent of the additional cost of fertilizer up to \$4,500 per year for up to 3 consecutive years. If the credit exceeds the total tax for the year, the excess may be applied to subsequent tax years until the excess is used, or by the fifth succeeding tax year.

***Tax Deduction for Purchase of Manure/Litter Spreading Equipment.*** A person who purchases equipment to spread poultry litter with the capacity of being calibrated to 1 ton per acre, or to spread solid or liquid livestock waste, may deduct 100 percent of the purchase price in the year of purchase from their State taxable income. If the deduction exceeds the Maryland taxable income, the excess may be carried over for up to 5 succeeding tax years. This deduction is much like an existing tax deduction for conservation tillage equipment.

***Technical Assistance/Field Staff.*** The Act provides additional funding for Extension nutrient management consultants. It also required the State to employ 110 field personnel in conservation districts by July, 1999, which returned staffing levels to previous highs.

***Research and Educational Programs.*** The Governor has committed \$800,000 per year for agricultural research and education programs to expedite implementation of technologies that will help farmers meet the WQIA requirements. This includes research and extension programs on composting, analysis of the pilot transport program, animal nutrition management, development of a phosphorus index, and phosphorus dynamics in soils. A cabinet-level group oversees use of the research funds. These funds have been used to support research on animal nutrition, alternative uses and crop management that are showing much potential. It has also been used to refine the phosphorus index and develop support tools for nutrient management consultants and farmers.

## Summary

The Water Quality Improvement Act of 1998 offers many challenges for agricultural and environmental interests in Maryland. It represents a major change in our approach to controlling agricultural nutrient pollution.

There is still considerable public debate about the law and pending regulations. It is clear that phosphorus must be addressed, but there is uncertainty about the impact of doing so, particularly on animal agriculture. While land and manure management are important, making them part of a mandatory nutrient management program has implications for farmers, consultants, agencies, and land grant colleges. It is important that agricultural and environmental interests in Maryland, and around the country, closely watch the phased-in implementation of this program to identify strengths and weaknesses and make needed adjustments.

The proposed regulations are available on the web at [www.mda.state.md.us](http://www.mda.state.md.us) under Nutrient Management.

## THE FUTURE OF U.S. TOBACCO PRODUCTION

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The U. S. tobacco industry has recently begun a significant transformation. Changes initiated by the Master Settlement Agreement between forty-six states and domestic cigarette manufacturers will have far reaching implications for U.S. tobacco producers. Aside from diminished domestic demand for leaf tobacco, other elements and effects of the Master Settlement Agreement have the potential for dramatically changing the way U.S. tobacco is produced and marketed.

The tobacco production and marketing system in the United States has traditionally afforded tobacco producers wide latitude in production/management decisions and flexibility regarding marketing decisions. Unless significant tobacco producer initiated changes are implemented, the economic landscape of the rural Southeast will change and the role as independent businessperson for tobacco producers will be jeopardized.

In recent years, the manufacturing needs of domestic cigarette manufacturers have played an increasingly important role in shaping tobacco production practices of U.S. tobacco. For example, varieties of tobacco released in the 1950's such as Coker 139, Reems 266 and Dixie Bright 244 enabled tobacco producers to significantly increase yields, while limiting input cost. Nevertheless, it was soon discovered that these varieties lacked desirable nicotine and reducing sugar ratios, thus placing an inordinate amount of tobacco with undesirable smoking characteristics into the marketplace and a large amount into the tobacco loan program. This problem was remedied in two ways; the Federal Tobacco Price support program discounted these varieties to one-half the price support level and tobacco state land-grant universities, in conjunction with cigarette manufacturers, implemented an extensive tobacco variety testing and certification program.

In the mid-1980's, an issue of graver importance surfaced, contamination of tobacco with pesticides not approved for use on tobacco. Flue-cured tobacco producers discovered that a foliar application of a herbicide such as Dicamba or salts of 2,4-D, when the tobacco plant was mature, would simulate ripeness thus creating a significant price advantage in the market place. Upon discovery of this widespread practice, the entire tobacco industry unified to address the problem. Again, certification for price support eligibility, random sampling of producers' tobacco on the auction warehouse floors, and an intensive producer educational program, all worked together to resolve the problem.

In the decade of the nineties, curing barn insulation contamination of farm tobacco was another example of the entire tobacco industry uniting to address a production issue using previously established techniques. There is little doubt that future issues surrounding tobacco production will continue to surface. The Master Settlement Agreement has changed the way U.S. cigarette manufacturers will market their products, it has forced into being a new era of corporate responsibility and if nothing else, taught cigarette manufacturers that their consumer tobacco products carry an enormous legal liability. Cigarette manufacturers are able and do control the

processing of raw leaf and they certainly have control of their own manufacturing processes. The point where manufacturers don't have absolute control is at the farm level.

In the past three years, tobacco purchasers have increasingly focused on raw material integrity. The most significant sign has been the implementation of production / management contracts on a small scale along with warnings of completely abandoning the current auction system if significant changes in production and marketing are not implemented. Tobacco contracting would assure the purchaser of the style, integrity and quantity of tobacco needed for specific manufacturing needs. The producer would be guaranteed a specific price for a specific quantity, however, the producer would sacrifice independence, lose the ability to make their own production and marketing decisions and would lose the strength in numbers when selling their tobacco in the marketplace. Other signals have been the use of identifying baled tobacco so that it can be traced back to the individual producer and farm. This step is indeed preparation for the implementation of increased raw material integrity.

Until recently, U.S. cigarette manufacturers have been somewhat satisfied with the federal and state regulations and regulations that govern the production and marketing of tobacco. However, with the burden of increased product liability imposed by the Master Settlement Agreement, the current system for guaranteeing raw material integrity may not be good enough for cigarette manufacturing needs. The issue of product liability will be a pivotal issue for both tobacco producers and cigarette manufacturers. In the business of producing and marketing tobacco, we are on the verge of a new era of accountability. For tobacco producers, the concerns over losing independence, the potential for losing a traditional way of life and uncertain economic stability, present the most significant challenge they will ever face. Cigarette manufacturers must address similar issues. How these issues are addressed will be critical to the survival of some tobacco producers, cigarette manufacturers, leaf dealers and auction warehousemen. The entire industry is challenged with how to satisfy the needs of all parties. For all parties to be satisfied, tobacco purchasers must be assured of raw material integrity and tobacco producers must assured that they can produce and market tobacco in a system that is fair and equitable while retaining independence. Unless these issues are addressed quickly and fairly by a unified industry, there will be casualties in the ranks of all parties and continued economic and political disruption in the entire tobacco industry.







